

SEPTEMBER, 1875.



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Organic Matter	40.12 per cent.
Containing—Nitrogen, 4.08; Ammonia 4.95	
Inorganic Matter	56.14 per cent.
Containing Phosphoric Acid	24.52 per cent.
Containing Bone Phosphate of Lime	58.52 per cent.
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Respectfully, etc.,

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EDITORS AND PUBLISHERS AMERICAN FARMER,

No. 9 North St., Baltimore, Md.

THE AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." Virg.

PUBLISHED BY SAM'L. SANDS & SON, BALTIMORE, MD.

VOL. IV.—No. 9.]

SEPTEMBER, 1875.

[NEW SERIES.

Two Celebrated Wheat Growers.

From an English journal, *The Food and Fuel Reformer*, kindly sent us by a friend in London, we give some extracts from an account by its editor of a visit to Mr. Mecchi, the well-known farmer, and of the system pursued which has made his name a synonym for progressive agriculture. Whilst his abundant command of capital, the cheapness of labor, and other differing conditions would make his processes entirely inapplicable to our continent, yet the principles underlying improved farming are everywhere the same. This coincidence will be seen, indeed, by a comparison of the methods adopted by Mr. Mecchi and those of the almost equally renowned wheat grower of this country, Mr. John Johnston, of Geneva, N. Y.

As a companion to the sketch of Mr. Mecchi's operations, we give from the *Country Gentleman* a description by Mr. George Geddes of Mr. Jonnston's system of farming, especially in growing wheat. Both of these articles will be read, we think, with pleasure and profit, at this season of the year.

A Visit to Tiptree Farm and Mr. Mecchi.

To begin, Mr. Mecchi showed in the result of drainage the great necessity for successful farming. Feeding a piece of ornamental water in his shrubbery, he showed the influx of a couple of small springs, yielding, perhaps, thirty gallons per minute—which, dammed up by the heavy clay sub-soil, had converted, before they were tapped, what is now part of a field yielding a luxuriant crop of wheat, into an impassable bog. Such is a specimen of what Mr. Mecchi has effected on his originally swampy land by means of judicious drainage.

Meanwhile, one of Fowler's steam-plows was steadily travelling over a field characterised by the peculiarity of having no less than forty distinctly different soils in it. It was demonstrated that the coulters succeeded in cutting a furrow, which, fairly measured, showed a depth

of fifteen inches; in fact they subsequently went deeper, when one of them was broken by coming in contact with a mass of pudding-stone fully eighteen inches below the surface. At this result, Mr. Mecchi banteringly alluded to a great agricultural authority who has recently stated that a depth of twelve inches had never been reached by the steam-plough. Here, however, was positive demonstration to the contrary.

Deep cultivation is the second great agricultural point with Mr. Mecchi; and it is a marvel how our farmers have all along failed to perceive its paramount importance—well known as it was to the ancient Roman farmers. Those grand old husbandmen, in their best days, had two kinds of plowing—one to the depth of "four fingers," or three inches, properly termed "scarification,"—the other went to the depth of *nine* inches—and this with an ordinary plow, drawn by oxen. But then they managed it as follows: They did not go round when they came to a field, as our plowmen do, but returned in the same track. They preferred wet and stiff ground as best adapted for their cultivation, but then they knew that it required deep ploughing, and thus they managed it without the steam plow. The "scarification" was only used for opening the surface preparatory to sowing; and strange enough, that is all we retained from the Roman system of farming—three to four inches having been the standard depth of our British furrows!

The third point with Mr. Mecchi, is *abundant manuring*. In order to deliver himself on this great topic, he led us to his fields—all presenting the solid proofs of sturdy growth—tall, erect and well-laden stems, showing that they had been supplied with plenty to eat and drink from the moment of their birth to their now approaching maturity. We saw a piece of land—one out of many—which had grown forty-eight bushels an acre of wheat last year. After receiving a dressing of 2 cwt. of guano and 1 cwt. of salt to the acre, it was sown with bearded wheat, which is estimated as likely to produce at least as heavy a crop this year if the season be favorable. Next year Mr. Mecchi hopes to grow at least forty tons of mangold an acre on the same land, after which it will again be put to wheat. Of course Mr. Mecchi varies the rotation of crops according to the nature of the soil; but he does

not adhere strictly to the two, three, four, or five course system; and wheat after wheat is grown, both upon the heavy and the light land, at Tiptree. As judicious and adequate manuring can dispense with fallow, so can it enable you to grow what you please in the land, as may be deemed expedient.

The fourth point of Mr. Mechi's farming is *thin sowing*. All his wheat, barley, and oats now ripening are acknowledged to be at least as good as can be seen in the Kingdom,—and yet his allowance of seed is only as follows:

Quantity of seed per acre—Wheat, 1 bushel on heavy land; barley, 6 to 8 pecks; oats, 8 pecks.

A part of one field, of the present season, was sown with only 2 pecks to the acre, and yet it competes with the rest in fulness and promise. "I do not believe," says Mr. Mechi, "that farmers know how much they often lose by thick sowing. They would do so if they tested, as I have done for years, comparative quantities on a small scale. Every man should thus judge for himself according to his soil, climate, and other circumstances of condition, &c. The frothy straw and light kernels of a thick-sown and early laid grain-crop, are a losing affair. If ever we hear of an extraordinary yield, it is usually from a crop so thin in the spring, that its owner thought of plowing it up; but after well harrowing, &c., it branched amazingly, and became the best crop on the farm. It is clear that there is some gross error in sowing, when our average increase is only nine kernels for one. Mine is at least 40 to 50 for one."

The fifth point with Mr. Mechi is the almost complete abolition of fences, hedges and trees on his farm, so that the term "field" at Tiptree is represented by "crop." By this means the land is rendered more cereal, by deriving all the advantages of unrestricted air and sunshine.

Sixthly, Mr. Mechi utilises liquid manure to the fullest extent at his command. A huge tank, as large as a good-sized house, is the receptacle for all the waste of the premises, together with, occasionally, an entire dead carcass cut into pieces, all kept macerating into the food-producing abomination. Pipes have been laid down throughout a great part of the farm for the purpose of irrigation, and the hydrants are so fixed that they can be supplied from conduits running from ten to twenty-five gallons of liquid manure per minute.

Seventhly, Mr. Mechi utterly denounces grazing, and maintains that permanent pasture is an unmitigated evil on a farm, because it is burnt up in dry seasons, whilst your hay is spoilt in wet ones. The best plan would be to import cattle-food in lieu of man's food. In the former case the results go to enrich our soils, in the latter they are wasted in our rivers. By a large consumption of foreign cattle-food we are enabled to procure our manure at the cheapest rate, and most effective in quality; and we can then produce more corn and meat at a diminished cost. If our grass lands are to be converted into arable, as they ought to be, such a course becomes absolutely necessary. "My own experience," says Mr. Mechi, "teaches me that this consumption of much foreign food, is the certain key to profit—by forcing maximum crops. By

this practice we feed the people and the land at the same time."

Such, then, are the seven great points or leading features of Mr. Mechi's farming—judicious drainage, deep cultivation, abundant manuring, thin sowing, clearance or abolition of fences, hedges, and trees, liquid manure irrigation, and, lastly, a minimum of pasturage and total absence of fallow.

And now for the result. Although the natural quality of Tiptree Farm is below the general average of soils in the United Kingdom, its produce of human food per acre is *three times* as great as the general average of the United Kingdom—as shown by the following summary:

PERCENTAGE OF CROPS IN ACRES.

	United Kingdom.	Tiptree.
Wheat.....	8%	37
Barley.....	4%	12
Oats.....	8%	3%
Peas and Beans.....	2	12
Root and Green Crops.....	11	8%
Clover and Grasses.....	12%	20
Permanent Pasture.....	50	0
Bare Fallow.....	1	4
Total.....	98	97

The cattle, which look remarkably well, *are always under cover*, and the sheep, all of which are bred on the farm, are folded within iron hurdles. The fold, which is moved morning and evening, is kept supplied with such supplemental food as cake, corn, bran, &c. The sheep and cattle have at all times access to water; all green crops and grasses are run through the chaff-cutter; all roots are pulped; and hay and straw-chaff is invariably mixed with other food.

The average quantity of fat meat made annually for every acre of the 175 acres of which the farm consists, is 200 lbs. Much importance is attached to this, because the manure made bears an exact proportion to the quantity of meat made. And, at the rate of 1 lb. of meat per day, Mr. Mechi could supply an army or a population of 35,000. He may well say that if all the farms in the kingdom equalled Tiptree farm in production, double our population could be fed with ease—without aid from the foreigner—and with something to spare.

When Mr. Mechi took the farm it was among the very worst in the kingdom in every respect, in fact it was dear at one pound an acre, which he paid for it. He has doubled its value. Most of the land is now his own property, and he accordingly debits himself with £350 for rent of the 175 acres, and he calculates that the difference between this and the sum of £800, leaves him a net profit of nearly 15 per cent. on the capital invested. Of course the outlay must have been very large; but Mr. Mechi has proved that high farming is compatible with high profits, and that the more you put into the land, the more you take out of it. After paying all expenses, Mr. Mechi declares that he has—taking one year with another—about eight hundred pounds left as clear profit. * * *

A Visit to John Johnston.

Mr. Johnston was 84 last April, and feels the infirmities of age somewhat, so far as his bodily strength is concerned, but not at all as regards his mental powers. In fact it is very wonderful to hear him give dates, and specify, without

reference to any notes or memoranda, the years in which certain crops were raised on his several fields, the yields per acre and the prices obtained. Nor does he forget his failures. Two crops of wheat, one of 80, the other of 90 acres, have been destroyed by hail storms during the time he has been raising wheat, and when he says he thinks that his life-long average yield has been equal to 28 bushels to the acre, he includes these two years of total failure. [This is a mistake and was corrected by Mr. J. In making his average he excluded the two years of failure.]

Originally Mr. Johnston's farm was a strong and heavy clay, and previous to his ownership it was, in the language of the neighbors, "run down," and, as a former owner of a part told him, the "cream" had all been taken out of it, receiving for a reply—"I will make butter from it yet." An old barn, standing amidst the accumulated manure of many years, told the story of its management. Though the land was by no means springy—in fact, I believe there was but one permanent spring on the place, and that was away from the lake shore—yet it was full of water that could not find its way through the tenacious clay. Mr. Johnston became the owner of this land when he was by no means a rich man. He purchased in pieces, as his means and credit permitted, until he had 800 acres (since reduced to about 100). He now tells the story of certain careful bankers lending him money without security on his note for eighteen months, to drain this land. He does not yet quite see how they dared to trust him for such large sums to invest in what was considered by most of his neighbors as a wild scheme of "burying crockery" in his land, as they deridingly talked when they passed by, wagging their wise heads. "But Mr. Johnston, did you pay that large note by the time it became due?" "Long before," was the prompt reply. The two crops of wheat that came in during the time, by their increased yield, wiped the debt all out, and gave him and some others confidence in his policy—which may be summed up by saying that he first took the stagnant water from his land, and then made all the barnyard manure he could by feeding sheep and cattle during the winters, and turning into the ground great crops of clover and grass, when he plowed his pastures and meadows, to raise wheat. The immense work he performed will be best comprehended, when it is stated that he laid about forty-five miles of tile drains—and this, too, on what is called uplands, not, as has been said, made wet by springs, but by the water that fell upon it from the clouds—and he is recognized as the very father of the now so generally practiced system of upland drainage in this country.

He had a field of forty acres that was seeded to clover, and most of it (all but three or four acres in one corner) had been drained, which he wished to put into wheat, and he did not wish to plow it until the clover had become fully grown. To this end, he purchased in the early spring three pairs of strong oxen, intending to put on each plow a span of horses and a yoke of oxen—a boy to drive and a man to hold the plow. Acquaintances, as they passed along the road, began to ask why he did not plow his summer fallow; but he bided his own time, pas-

turing ten sheep to the acre after the clover had become well grown, and until quite late in June. Then, with his three spans of horses and his men, he went to the field, sending in another direction for the oxen. For some reason, there was delay in bringing the oxen, and having nothing else on hand, he started a team of horses before one of his plows, and was surprised to find that two horses on a plow were enough, and no oxen wanted. So when the oxen came, the boys were told to drive them back, and let them get fat to be sold for beef.

This saving of a boy to drive and a yoke of oxen, was due to the draining. The tenacity of the soil had been broken up by freeing it from water. This was demonstrated when the plows came to the part that had not been drained—left, as in Mr. Johnston's judgment, not wet enough to materially injure crops. To plow this undrained land, it was necessary to use three horses to a plow. The lesson taught was improved, and drains were at once put into this piece. So it was not merely the increase in the crop, but the lessened cost of producing it as well, that was gained.

The after-treatment of this field consisted in keeping the surface mellow, and leaving the clover in the furrow. In regard to this method of summer-fallowing, Mr. Johnston said that in 1859 he harvested twelve acres of Mediterranean wheat that measured 35 bushels to the acre, weighing 64 pounds to the bushel (making the merchantable average 37½ bushels). He plowed an old sod in June, deep, using three-horse teams, and kept the surface mellow by harrowing, but no other plowing.

The largest yield of wheat he ever had was in 1827; 20 acres averaged 42½ bushels to the acre.

So it turns out that this master workman has never been able to produce, on a field of real mother earth, more than 42½ bushels to the acre of wheat in one crop.

This will appear strange to some of your readers. We are often told of larger crops, and theorists urge us to aim at larger averages than Mr. Johnston's very best result, in an experience of more than half a century. It is certainly well to aim high; but in this climate, whoever raises more than 40 bushels of wheat on an acre of land in one crop, must not only have the very best of land, and have it in the very best condition, but all the chances must turn in his favor; the crop must come up well, and grow well in the fall; the insects must let it alone; the winter must have enough snow to protect the young plants, and not so much as to smother them.—The snow must go off at the right time in the spring, and warm showers must give a start, and uninterrupted good weather follow, till harvest. Neither rust, or midge, or Hessian fly must injure it, and favorable weather must prevail in harvest time. "Ah!" said Mr. Johnston, "I have raised many, very many crops of 30, 33 and 35 bushels to the acre, but 40 is hard to go beyond." The faculty of self-deception that some men possess, is entirely wanting in our venerable friend, and there is just one thing that he cannot do any more than could General Washington.

I saw on Mr. Johnston's farm, two pieces of very excellent barley, and expressed my admira-

ration of them. He said he did not think his land well adapted to this crop, though it did happen to be good this year. He did raise barley long ago, but the price fell off and went below half a dollar per bushel, considerably, and he discontinued raising it. Now the price of barley is good, and he is trying it again, intending to sow wheat on the stubble this fall. He said that he never raised a very heavy crop; his largest was 41 bushels to the acre, by measure, that weighed 51 lbs. to the bushel, (43½ market measure to the acre.) He followed this crop of barley with Diehl wheat, and harvested 33 bushels to the acre, selling it for seed at \$3.25 per bushel. When I told him that some of my neighbors were raising barley and averaging 40 bushels per acre for a series of years, and following with wheat that had averaged fully 25 bushels per acre, he said this was far better than raising only the crop of wheat; and, that if he could calculate on an average of 30 bushels of barley, to be followed by 20 bushels of wheat, he would consider the two crops more profitable than one crop of wheat—which could not well be estimated at more than five bushels per acre better on a summer-fallow than after barley, if the land was rich and properly cultivated—but to make either way profitable, it must be both rich and well cultivated, and summer-fallows must occasionally be resorted to, to destroy weeds.

With all Mr. Johnston's knowledge and industry, his wheat crop this year is nearly a failure. His Diehl wheat, that was exposed to the cold winds of March and April, was just ruined, and the timothy seed sown in early October, 1874, has matured into a fine crop of hay, and has been cut for hay. The Diehl that was sheltered by a thick belt of woods along the lake shore is barely middling, and ripening very unevenly. The Clawson wheat, of which he sowed only a strip along the side of the ruined field of Diehl, is middling.

I was at Mr. Johnston's last season just previous to wheat sowing, and saw the perfect cultivation of this field, that has failed so entirely, so far as the Diehl wheat is concerned. The summer-fallowing had been very thorough, and the Canada thistle roots, that the nurserymen had introduced while raising trees in this field, were being dug up as far as they could be traced, and nevertheless the cold winds and frosts of Spring destroyed the Diehl.

The beneficial influence of protection against the prevailing winds of March and April, is shown more strikingly this season than I ever remember to have seen before. Land sloping to the east will have good wheat growing on it, while other parts of the same field that slope to the westward will be ruined. Even an ordinary rail fence will show a strip of good wheat in its lee, a rod or so wide, while farther out in the field there will be no wheat. This unevenness of the crop is entirely due to the fact that the cold winds of Spring took hold of the unprotected places and killed the plants. No Summer-fallowing or thorough cultivation is of the least benefit or protection against these winds. Rather the other-wise—for the rougher the ground is left in the fall, the more plants will survive, and the smoother the surface the more destructive the effects of the winds.

I have seen ground frozen hard and dry, and the soil blown away from the wheat plants, leaving them to die, or, perhaps, barely hanging by the ends of their roots, to just survive, if favorable weather came soon. In fields sloping to the westward, or otherwise much exposed to the Spring winds, I like to drill in the wheat at right angles to the prevailing winds, which are here from the northwest. This makes the drill marks run southwest and northeast, leaving the ground as rough as possible. The drill ridges make a considerable protection, and a top-dressing of fine well-rotted barn-yard manure, spread on the ground immediately before the seed is drilled in, will almost insure the safety of the crop. Between the stimulating influence of the manure, and the protection of the drill ridges, the crop will generally go through safely. Some of the best wheat now growing on our own farms, is on the brinks of some sharp ridges and knolls, that were treated in the manner described. But the Spring must have been more severe in Seneca county than here, for Mr. Johnston's wheat has suffered more than ours, though it was well manured and drilled in.

Experiments with Fertilizers.

In our Nos. for April and the two succeeding months we gave the results of the experiments of Prof. Stockbridge at the Massachusetts Agricultural College, which demonstrated that with fixed quantities of phosphoric acid, potash and nitrogen applied to the land, certain returns could be expected in excess of what the natural soil would produce—the increase attained being limited only by the space necessary and the operation of natural forces, as sunlight, air, warmth, &c., and that this held good, as shown in the examples given, with corn, potatoes and tobacco.

Applications of fertilizers, containing certain known proportions of the elements named, were made on others than the college farm, and the estimated returns of the crops were found to have been uniformly reached.

In a later lecture the Professor said, according to the *Scientific Farmer*:

"The cheapest form in which nitrogen can be obtained in the market is crude sulphate of ammonia. Suppose a certain brand is guaranteed to contain 24 per cent. of ammonia; then in 100 pounds of this we have 20 pounds of nitrogen, (100 pounds of ammonia contains 82.3 pounds of nitrogen and 17.7 pounds of hydrogen.) For the potash we will take a German potash salt, guaranteed to contain 32 per cent. of sulphate of potash; in 100 pounds we will have 16 pounds of potash. The phosphoric acid we will get in the form of superphosphate of lime, guaranteed to contain 15 per cent. of soluble phosphoric acid. As we have shown above, 25 bushels of corn requires 30 pounds of nitrogen, 31.7 pounds of potash, 13.8 pounds of phosphoric acid. Therefore, to furnish plant food for 25 bushels of corn, we should take 150 pounds of the crude sulphate of ammonia, 63 pounds of sulphate of potash and 105 pounds of superphosphate of lime, of the above stated guaranteed percentage.

These experiments have been in progress for six years, and are still in their infancy. This year many farmers are raising crops according to these principles, and we predict most gratifying results. Of course there will be some failures, caused by ignorance, mistakes or carelessness; but with more knowledge and experience will come success."

Systematic Farming in Germany.

We must cull another selection from the *Scientific Farmer*, which says our German cousins have fairly outstripped their Yankee relations in this matter of systematic farming. Every German farmer of note keeps a book account with Nature as carefully as with his commercial friends. Every article sold from the granary, fattening stalls, cellar or dairy, is weighed carefully, and Nature is credited with just the amounts of potash, nitrogen and phosphoric acid contained in them. The amount of plant food he must return to the soil to keep his land in a good state of fertility is easily deduced from this account. Below, we give an extract from the account between Mr. Schmidt and Dame Nature:

		NATURE. CR. 1874.		
		Nitrogen.	Potash.	Phos. Acid.
5,000 lbs.	beef.....	130.0	8.5	98.0
25,000 "	hay.....	262.0	342.0	82.0
1,000 "	mutton.....	22.4	1.5	12.3
2,000 "	potatoes.....	6.4	11.2	3.6
1,000 "	pork.....	20.0	1.8	8.8
600 "	beans.....	20.4	6.0	6.8
3,000 "	wheat grain.....	62.4	16.5	24.6
1,000 "	milk.....	6.4	1.7	1.9
500 "	eggs.....	10.9	.8	1.6
		540.9	390.0	233.6

Thus it will be seen that our friend sold 540.9 pounds of nitrogen, 390 pounds of potash, and 233.6 pounds of phosphoric acid. Allowing that the processes of Nature make soluble from the rocks considerable quantities of potash, yet it is better to return to the soil each year as much plant food as was removed in the crops, in order that the farm may not only retain its fertility but increase in productiveness every year. For the sake of increased crops and larger profits Mr. Schmidt will return the amounts stated in summing up the account.

Bringing the matter home to America, it is desirable, for these reasons, in order to improve our farm lands in a rational manner, that no fertilizer be sold except upon a guaranteed statement of its composition, whether that fertilizer be super-phosphate of lime, slaughter-house refuse, potash salt, or chemical fertilizers of any sort, so that we may know what we pay for, and pay for what we want. We shall make a great advance in agriculture when we step into the path traveled by the Germans, indicated above.

The following table, compiled by Prof. Goessmann, shows the percentages of the more essential elements in some of the common crops, in 1,000 parts of the air-dried substance, which amounts must be supplied in their production:

	Nitrogen.	Potash.	Phos. Acid
Wheat grain.....	20.8	5.5	8.2
Rye grain.....	17.5	5.4	8.2
Barley grain.....	15.2	4.8	7.9
Oats grain.....	19.2	4.2	5.5
Indian corn grain.....	16.2	3.3	5.5
Peas.....	35.8	9.8	8.8
Beans.....	40.8	12.0	11.6
Potatoes.....	3.2	6.6	1.8
Beets, common.....	1.8	4.3	0.8
Turnips.....	1.8	3.0	1.0
Hay.....	13.1	17.1	4.1
Live calf.....	25.0	2.0	13.8
Live ox.....	26.0	1.7	18.6
Live sheep.....	22.4	1.5	12.3
Live hog.....	20.0	1.8	8.8
Wool.....	94.4	1.9	0.3
Milk.....	6.4	1.7	1.9
Cheese.....	45.3	2.5	11.5
Eggs.....	21.8	1.6	3.2

Sowing Small Grain in the South.

Col. D. Wyatt Aiken, in the *Rural Carolinian*, in a paper urging farmers to sow small grain, as well as plant cotton and corn, says:

"Red oats can be grown at an expense of twenty-five cents per bushel upon any ordinary farm in the South; every such bushel will weigh thirty pounds, and a pound of oats will produce just as much muscle and fat as a pound of corn. I have kept a horse for two years without ever feeding him an ear of corn or a blade of fodder, his daily diet being shelled oats and straw, or cut oats from the sheaf; he has been ploughed, wagoned, harked about in a buggy, and ridden under the saddle, and there never was a time he was not ready and willing to do a full share of work. Any land that ever I have seen in the South will produce two bushels of oats where it will grow one bushel of corn; each farmer for himself can calculate the cost of growing the two crops.

Red oats will yield more grain to the straw, and more delicate straw than any oats I have ever grown. Sown in the fall, they will produce a remunerative crop on good land, even if frozen out during the winter to a single stool to every square foot. They are heavier than any other, and have never been known to take the rust. A few years ago, I selected eight adjoining acres, and on them sowed a bushel to each acre, of eight varieties of oats. Some were entirely destroyed by the winter, some were ruined by rust, and all but the red oats were more or less damaged by this parasite. Not even a blade of the red oats was touched, though the acre was in the midst of those most thoroughly ruined.—The time is upon us when they should again be sown, though they are remunerative if sown at any time between this and the 1st of next March.

I prefer to sow in cotton-land broad-cast, and plough in with three or four sweep-furrows.—This lays by a cotton crop as well as sows a small grain crop, hence a saving of half the labor. It is cheaper to sow in the cotton field, even if postponed till September or October, because cotton requiring clean culture the land is in better tilth, and fewer furrows are necessary. The hands while picking cotton during the winter will trample upon the young sprigs, and make them stool out better therefor. Sheep will winter on oats in a cotton field and never molest the cotton till they have eaten up the oats.

Where cotton is the exclusive crop, there is no little vexation and harassing doubts at harvest time to him who ventures to sow small grain. In June the cotton and corn need the attention of the laborer constantly. Hence, the policy, almost necessity, of interesting the laborer in the ownership at least of the oat crop. A fair contract, in this regard, is for the employer to furnish the seed, fertilizer, and land, and require the employee to supply the labor of seeding and harvesting, and at harvest time divide the crop, one-fourth to the laborer and three-fourths to the employer. An acre of land, producing twenty bushels of oats, would thus give the laborer five bushels of oats for about two days work, (plowing, scattering manure, knocking down stalks, and harvesting,) and fifteen bushels to the owner, one and a half bushels of seed, three and a half bushels to pay for fertilizer, and ten bushels rent. I have never known red oats to sell for less than seventy-five cents per bushel, and even at fifty cents per bushel, ten bushels are a very fair rent for land that will not produce more than twenty bushels of oats per acre. Fair uplands in middle South Carolina will average twenty bushels without manure; and I have seen it stated that the Mississippi bottoms have yielded one hundred bushels per acre during favorable seasons.

Red land will grow barley better than grey land; though barley is very like clover, none need try to grow it upon land that is not thoroughly prepared and very highly manured. Old red land cow-penned and sheep-hurdled, will produce more of this grain per acre than any land naturally rich, or stimulated with fertilizers. Sown on such land in September, it will furnish good grazing for any kind of animal during the winter; but experience teaches me no hoof should make a track upon the barley patch from the time it is sown until harvested. As soon as it is high enough to grasp with the left hand, and be cut by a knife or sickle in the right, it should be "soiled" (cut and fed) to any kind of stock. No green food is equal to it. It will fatten the pigs, lengthen the wool on a sheep, increase the flow of milk in a cow, and supply a new coat of hair to the plough animal. If sown in September, and the fall be propitious, it may be soiled in November, again by 10th March, if the winter be not very severe, and still a third time in April, if that month be warm and wet; and by the middle of June, perhaps earlier, (depending on the weather,) will produce as many bushels of grain per acre as the best crop of wheat.

I have sold barley at two dollars and a half per bushel, and never sold a bushel less than one dollar and three-quarters. An acre of land thoroughly cow-penned, sown in barley in September, and the green grain not soiled, will yield forty bushels of grain that will produce as much muscle and fat as forty-five bushels of corn. Dry barley should be either soaked twenty-four hours, or ground, if fed to plough stock. Neither mules nor horses are naturally fond of it. The taste, however, when once acquired, becomes voracious. Green barley in the milk state is wonderfully nutritious, but cannot be advantageously fed because the prickly beard that is upon the head cannot be easily

swallowed by the animal, will lodge in their jaws and throat, and sometimes produce very sore mouths. It seldom, however, injures the throat, as the bolus, when sufficiently prepared for deglutition, is not apt to stop short of the stomach.

Some Thoughts on Farming.

JOSEPH HARRIS, in the *American Agriculturist*, has the following, which make suggestive reading:

"The drouth still continues. We shall have light crops in this section. Winter wheat on many fields will not return more than the seed. Barley and oats will be far below an average yield. It is too soon (June 15) to say anything about corn, but the indications are favorable. I hope we shall have a great crop. The country needs it, and I suppose an unusually large area has been planted. The scarcity of pigs will give us good prices for choice pork, and the "hog crop" next fall will prove a profitable one. And this is the real point. Business men and financiers talk about the money which we get for wheat, corn, etc., but what the country needs is more profitable agriculture. We need better crops per acre, and better prices. I predicted the present depression in business; I knew that farmers were not making money. I knew they were selling nearly all their products at less than it cost to produce them. *It is not the aggregate amount of money we receive for our products that determines our prosperity, but the margin of profit left after deducting our expenses.* Our expenses have been far too great, and we have been obliged to curtail them—hence the depression in business. What the country needs to-day is better farming. I think we shall have a higher range of prices, but that alone will not insure prosperity. We must have larger crops per acre. This will lessen the cost of production. We must have better stock and feed more liberally."

"I do not think I have ever known farmers feel so 'blue' as at the present time. And in truth it is not to be wondered at. The times, and seasons, and crops, are discouraging. But let us not be cast down. Let us keep on working and hoping. There is light ahead. We have less to complain of than any other class. The duty of every farmer who can afford it, is to push forward improvements. Labor and materials are comparatively cheap, and it is a good time to spend money—if you do it judiciously."

"We have a German farmer in this neighborhood, who sets us all a good example. He commenced life as a hired man. He has now one of the best farms in the town, and is adding acre to acre. Whatever he does is done well. He never seems to be in a hurry. But he commences to plow in the spring before some of us begin to think about getting the plows ready, and he has ten or twenty acres of barley sown before some of us have plowed a furrow. He is always ahead. Everything is in its place; everything in good repair and ready for use at a moment's notice. His land is getting cleaner every year—and I was going to say richer, but I am not so sure on this latter point. I have

sometimes thought he was running his land rather hard. But there is certainly no diminution in the crops. His farm would sell for 50 per cent. more than he paid for it, while other farms have not increased in value. The secret of success, in his case, is first in the man himself—in his industry, sobriety, and good judgment. And in the next place I think it is due principally to the fact that he plows early, and plows late, and plows well, and plows often: and he uses the harrow and the roller until his soil is mellow and in good order for the seed. Then he cultivates his corn and potatoes and beans the moment he can see the rows, and he suffers not a weed to grow and go to seed. I ought to add that he has five energetic sons to help him, and, while he hires little or no labor, there is a large amount of work done on the farm. In fact, say what you will, there is, never has been, and never will be, good farming without the expenditure of considerable labor.—I have always employed a good many men," said John Johnston, and all really successful farmers, I think, would be obliged to say the same thing."

Effects of Drought on Grasses.

Mr. C. W. Howard, in one of his communications to the *Rural Carolinian*, gives the following as his experience this year:

The contrast this year between lucerne and clover, orchard grass and timothy, is striking. These three have been so damaged by the May drought as to be hardly worth cutting. Lucerne was unaffected by it, and continued to grow without a drop of rain between the cuttings, except a washing shower a day or two before it was cut, and too late to do it any good.

Meadow oat grass has been less affected by the drought than any of the grasses, having grown about five feet tall. The same result as to this grass occurred during the May drought of last year. Some of the best timothy meadows in Northwest Georgia and Tennessee failed almost entirely. The meadow oat grass, on the contrary, gave a full crop. This grass seems admirably adapted to the South. Its more general culture is much to be desired at the South, specially for the cheapening of the seed, which now costs five dollars per bushel. It seeds abundantly, and the seeds are easily threshed out. It should be remembered, that about the time of sowing turnips is the best season for sowing this grass, and, in fact, all other grasses and forage plants at the South.

"WEIGH, MEASURE AND COUNT EVERYTHING," says the *American Grocer*,—which is, by the way, a most useful and excellent journal, published in the interest of storekeepers. But the advice should not be restricted to grocers, as it is especially valuable to farmers as sellers and consumers of produce. Few farmers know exactly what they sell, and a platform scale is, we regret to say, a rare piece of barn furniture. A very important thing, and one which few farmers know exactly, is the quantity they feed to their stock, and how much a bushel of grain, a ton of hay, a quart of milk, a pound of butter, or a pound of pork, costs them. A knowledge of

these things is necessary if the farmer would make his business profitable, and unless he weighs, measures and keeps account of everything used upon or sold from the farm, he cannot tell whether he is working at a profit or a loss.—*American Agriculturist*.

Correspondence.

How Shall we Farm with Profit?—No. 1.

Messrs. Editors of *American Farmer*:

There are few cultivators of the soil either in your State or my own, whose minds are not devoted to what we may justly term *specialties* in soil cultivation, such as fruit-growing, dairying, etc., that have not time and again asked themselves this question. While the nature of the soils we own, the climate, contiguity to markets or otherwise, cost of transportation, labor, the capital we can command, and other circumstances as to manures and natural advantages for growing certain crops in preference to others, which will readily occur to each reader of these lines, *may* and *must* necessarily influence our farming operations in extent, kind and diversity of crops; yet there are certain principles applicable alike to every section of our respective States.

It is to some of these principles that your correspondent proposes to refer in the present article, leaving to the reader their personal application. It is scarcely necessary for me to state a fact so generally admitted by our farmers, and written of, by agricultural writers, that we annually expend an immense amount of horse and hand labor on large areas of land in crops whose returns, *chargeable with rent and cost of cultivation*, yield slight or insignificant profits.

The immense grain and flesh crops of the West and far South, rapidly transported to the East by railroads, come into competition with similar crops from our eastern States. What matters it, to the teeming thousands to be fed, that Maryland and Virginia wheat produces better flour than the wheat from Ohio or California? Your Baltimore corn beef, made from cattle fattened on grasses in the Virginia valley, may be and is of infinitely better quality than the corned beef of Texas cattle, yet the prices of the *inferior* materially influence those of the *superior*, and lessen the profits of the wheat as well as cattle growers of our States. The laws of supply and demand regulate prices the world over, and the farmer growing any crop for the general market must *never expect* in a country where telegraph and railroad communication is so extensive and rapid as in our States to make a happy hit and fortune in any special crop growing, as speculators in stocks sometimes do in the market.

So diversified are our crops, so extensive is our territory in various States, so immense is home consumption compared with exports, and so rapidly are the heaviest of our products from the farm transported from one State and section to another, at the *call of trade* for better prices, that the failure of any crop in a section disturbs the general equilibrium of prices simply as a

pebble dropped in the water,—a few ripples and no more.

From the above consideration it will readily be conceded that we are to look for profits in farming nearer home and *seek the economy of producing staple crops*, and crops of luxury such as tobacco, now become from habit as much a crop of necessity as food crops, rather than look for higher prices. It has been in our State, and is the same I presume in yours, the habit of our people to look too closely after the money or market crop directly, neglecting often the essentials to its most economical production.

I need not refer to the experience of cotton growers so often detailed in the U. S. Agricultural Reports, in reference to the ruinous policy of buying subsistence supplies to grow the money crop. The same principle applies to a greater or less extent to all specialties in trucking and farming, and constitutes one of its greatest risks, also affording one of the strongest arguments in favor of diversity in farming, and in certain localities diversity even in market crops.

How shall we farm with profit, and the great profit, might be easily answered by repeating the well-known and frequent remark of agricultural scribblers, by producing the "largest amount of marketable produce on the smallest area, with the least expense." The "how to do it" yet comes in as an important essential, and to all of us, who have growing families to provide for from the profits of the farm, an inquiry necessary to the future support and comfort of our heirs.

The annual improvement of the soils we cultivate, the employment of all arable lands in some crop that will yield income in hay or pasturage, the culture and growth of the market crops at the least possible expense through the subsidiary aid, as it were, of the necessary subsistence supplies made from year to year in connection with the labor employed on the market crops, and a most important consideration is an annual increased yield on reduced area, so as to increase the profit of production. If this is not a correct policy, (possibly of difficult principles for some of us to apply,) applicable to all of us who cultivate the soil, then my ten years farmer's life has not taught me correctly.

From the above considerations it will readily be inferred that when we seek the answer to "farming with profit," we must come home to soil improvement. In traversing our own counties and States, as well as in Europe, we shall find a constant relation existing between poverty or unproductiveness of the soil and poverty of the people. On rich farm lands and counties, we find wealth, refinement and intelligence. In the immediate vicinity of the Virginia University, which is located near a thriving village and surrounded by rich lands and well-to-do people, will be found within a few miles the barren rocky ragged mountains—spurs from the Blue ridge—peopled by inhabitants rude and ignorant, similar in appearance to those we meet twenty miles from Geneva at the base of Mount St. Bernard. We have but to enter any of our States to find the same thing. The poorer the soil, the poorer the people.

The argument, therefore, from comparing our own States to others, and even foreign countries, is irresistible, that the well-being of our people at large, the wealth of our States and people, their progress toward all that men most value in life, has its basis in the improved and increased productive capacity of the soil; and the surest road to the correct answer to the question with which I have entertained your readers for a brief time, is, that the most certain method of farming with profit lies in diminishing the cost of production rather than any possible hope in the near or distant future of an increased price for staple products.

NANSEMOND.

Exchange, Va., July 31st, 1875.

[TO BE CONTINUED.]

Weevil in Wheat—Wheat and Grass in North Carolina—The American Farmer in the Old North State—Great Success in the Sowing of Lucerne.

Messrs. Samuel Sands & Son :

Gentlemen—I received promptly the mower-knife and the large plow points by express, and am well suited with them, as they fit all right.

The single head of California wheat you presented me two years ago, I have planted now twice and have about one peck to plant this season.

The small package of Fultz wheat you sent me at the same time I have also planted twice, and now have about a bushel to sow this season. They are both excellent samples of wheat. Some of my neighbors, upon inspection, think one is best, and others think the other best. I like the appearance of the Fultz best myself. I had poor luck with the first crop of this wheat, and this leads me to say a few words about weevils in wheat. I thought so much of my new wheat I cut it with a sickle and bundled it up, and after letting it stand a few days took the bundles to a vacant house and suspended them with a cord to the ceiling. This, mind you, was to protect from rats and mice. I had not thought of weevils. I let the wheat hang some three weeks, and on inspection found it thoroughly infested with weevils. I stood up on a barrel and with a bucket of slaked lime I gave the heads in the bundles a thorough dusting of this article, feeling confident this would drive them off. I examined the wheat again in about six or eight days, and found they had not at all abated. I then procured sassafras root, a remedy I had never known to fail, and washed and dried it, and stuck all about through and amongst the heads. This failed likewise. I then threshed the wheat and put it out in some boxes and threw salt, lime and tobacco all amongst the grains; this failed too. I then spread the wheat on some papers and put it out in the hot sun for two or three days. This did the work—they disappeared.

Here are two facts I deduce from this scrap of experience. 1st. Thresh your wheat promptly and put it away dry in your garner. 2nd. Apply your antidotes to weevils at once, before they begin. "One ounce of prevention" in this case "is worth a pound of cure."

Now when your wheat is put away into the bins, gather some sassafras root and dry it and stick it about and amongst the wheat, and I warrant weevils will never trouble it. These weevils

are much greater pests here than they are in Maryland and North. This climate is damper and hotter and better for weevils.

And I do not put forth this bit of experience expecting to benefit your regular wheat farmers, but for the benefit of my brethren of the old North State, and especially of this section. We here are just now in our a-b-abs and b-a-bas in the wheat and grass and stock business. We are getting our eyes open to some extent. And I feel confident in a few years this will be, to a considerable extent, a hay and stock and grain region of country.

And we farmers are greatly indebted to you, gentlemen, for this good prospect ahead. I have scarcely a single neighbor any where around, who does not take the good old *American Farmer*. I started out last winter to make you up another club and I quit. I could not find any body who had not already subscribed.

You have frequently solicited us farmers to contribute to your paper such sketches of our experience and such of our thoughts and ideas as we think would be of interest and benefit to our profession. I am no writer, but sometimes think it a duty we all owe one another to push the ball along and keep it in motion, and stir one another up and throw light, if possible, upon subjects and matters pertaining to progressive agriculture. Husbandry, in the present day, is no longer regarded by mankind as a dull, plodding commonplace business. It has risen to the dignity of a science and profession.

Farmers are rapidly establishing for themselves a history and a literature of their own. They have invoked science and learning and brought them to bear in their great enterprises. Their standard of intellectual culture has risen in a few years, to a standard almost equal to the standard of any of the so-called learned professions. Their standard of moral culture, honesty and integrity, sobriety, &c., we are almost tempted to assert, stands superior to any. Their power is now being felt throughout the whole civilized world.

Their work is a work of good. They obey Him. They earn an honest living by the sweat of the face. This is His command.

Look into the great country and look into the great cities. Mark the difference in the habits and actions of the populations of each. In the great cities, passion, excitement, envy, folly, fashion and misery abound. In the country, quiet, calmness, sobriety, industry, modesty and strict integrity abound. Still I will not speak against cities. They are necessary evils—"sores on the body politic," as a great statesman said.

These cities have such great attractions for the young—farmers' sons and daughters for instance, that it is often the case that we have difficulty in contenting our children at home in the country. But let us keep them at home in the country. To do this we must beautify and adorn our homes. We must increase our libraries and have a society of our own, both attractive and improving to the young. We must have a literature of our own. We must encourage our youths to love home and love to learn those beautiful sciences which have a direct bearing on our great profession. Chemistry, Botany, Mineralogy,

Geography and Astronomy are peculiarly studies suited to country life and farm life.

But I am getting too lengthy. I shall bore some of your dear readers—for fear of which I will close, after telling you a word or two about that lucerne.

This is the second year of my lucerne. I have this summer cut it twice, and am now saving the seed from the third crop. It is first-rate forage and outgrows anything I ever saw. It seems to delight in being mowed off; it grows right up again almost like magic. I confirm by my experience all you have said in favor of it in the *Farmer*. Yours, J. J.

Pitt Co., N. C.

An Experience With the Pea Fallow for Wheat.

Messrs. Editors *American Farmer*:

Your favor asking my experience with pea fallow has been received.

I seeded one and a-half bushels peas per acre last week in May, and harrowed them in. When well up gave them a dressing of plaster one bushel to the acre. The growth was luxuriant.

When the pods were well filled, a neighbor advised me to turn on my hogs, and now I regret very much I did not take his advice. Part of the same field had a fine growth of clover. I never let a hoof go on either peas or clover, but put chains on the plows and turned all under. Finished seeding with a drill October 3d, five pecks Lancaster red wheat per acre. It looked well in the fall, and, indeed, until late in spring. About the time it commenced to head out I noticed it was falling. I then examined and found it was cut off by fly. At harvest not one-half was standing, and that looked diseased. The adjoining field had a fine growth of clover. When in full bloom, I turned all the stock on the farm on it; they trampled it down completely. Finished seeding that field with drill October 15, five pecks Fultz wheat per acre. Sowed with hand 150 lbs. bone meal, 1 bushel salt, 1 bushel plaster per acre. No sign of fly, and, undoubtedly, a fine crop of wheat. Like very many here my wheat is shocked in the fields, and the rain has been so constant we could not thresh.

I am fully satisfied it will not answer to turn under a luxuriant growth of peas or clover for wheat. The clover part of the field was no better than the peas. It should be hogged off or trampled down, and then the land would not be left "puffy." My pea field was not light soil, but moderately stiff.

At the last working of my corn I seeded one and a-half bushels rye to the acre. It now looks well and I will have a nice fall pasture. I think of turning it under in May and seeding peas; if I do, will trample them down. Tell me what to do with it. I feel indebted to Mr. Gilmer for his instructive letters to the *Farmer*, and will try to be of some advantage to him by advising him to dig up and burn every sprig of wire grass on his farm. It is here considered a *curse*. Truly yours, &c., J. C. GREENWELL.

St. Mary's Co., Md., August 10, 1875.

The True Theory of Farming.—No. 9.

Messrs. Editors American Farmer :

A seed contains sufficient food transmitted from the parent to start a stem upward and root-lets downward.

It will germinate and make a full growth in a soil saturated with water, but which is too cold and inactive to mature the plant. Although the air above be of proper temperature, and the leaves be well fed by the winds, for want of bottom heat and food, the plant languishes.

By evaporation the surface of the soil becomes "baked" and compact around the roots and stem; the leaves turn pale, yellow, and brown, and the plant dies prematurely.

The reduction of temperature, one of the causes of the disease, is in proportion to the rapidity of evaporation, and this is intensified by the solidity and smoothness of the surface.

The same phenomenon, of pale, yellow and brown leaves, appears with the chilly winds of autumn in all soils, and nobody is so ignorant as to ascribe it to excessive heat.

Yet when this result is produced by a "cold" sterile soil we are told the plants "fire and burn up," and the farmer, of course, is afraid to disintegrate the soil and thus increase the heat, which is already erroneously supposed to be too great.

This is a conglomeration of ideas impossible of belief; inconsistent with attainment of truth, or with any system of science, or intelligent investigation.

The plant is starved, and chilled to death, and hence the true saying, that such a soil is "cold and barren."

The only mediums for conveying food to the roots of plants are air and water in the soil. These being stationary, (stagnant,) in a compact soil, when the assimilable food that happens to be in contact with the young rootlets is appropriated, in such a soil, there are no means of renewal. Even if abundance of food be close at hand, if it be not in contact with the feeding roots they will starve in sight of it.

Again, substances indigestible to plants exist in all soils, dissolved in water. This water, with these substances in it, is absorbed by the roots.

Plants like animals appropriate the digestible parts and excrete what is unsuitable, or cannot be assimilated. In a healthy active soil this pernicious excrement is removed from the roots, and disseminated; its place being filled with fresh water, containing wholesome food.

The inactive soil furnishes no means of its removal and the plants are stifled by their own excrement, surrounding the roots through which it exudes.

Elaborate proof that a crusted stagnant soil is colder, that is, contains less heat, than a well drained porous soil, is hardly necessary. But as an understanding of the reasons of one phenomenon often leads to a knowledge of others, it may be well to enquire into some of the reasons of this acknowledged fact.

Among the sources of heat in the soil is the decomposition of vegetable bodies.

Combustion or burning of vegetable bodies is maintained, chiefly, by the union of free oxygen with the vegetable carbon. Coincident with this is the evolution of heat, and the disengagement

of the other parts of the body, and their union with other solid or with gaseous bodies, or their reduction to a free state; all of which changes develop heat.

It is supposed that the same quantity of heat is evolved by the slow decay of a vegetable substance, as in its sudden combustion by fire. It only differs in degrees of intensity. As a certain amount of force is necessary to rive the oak, whether exhibited in the slow measured strokes of the woodman, or in the instant descent of electric fluid, so the chemical and physical changes in the decomposition of a log of wood evolve the same quantity of heat, whether it be diluted, and insensibly diffused to passing years, or suddenly expended in the lurid flame.

To a porous soil, gaseous oxygen has ready access. Its union with decaying vegetable matter develops sensible, from latent, heat, as friction eliminates fire from flint and wood. The heat thus developed in the decay of vegetable matter is diffused in the soil and raises its temperature, increasing the heat.

To a stagnant compact soil, the arch destroyer, oxygen, has but feeble access, and the vegetable matter slumbers for ages after it would have been consumed, in a porous soil, and assumed other forms for the weal of mankind.

All chemical changes, whether of vegetable or mineral matter, in the soil, are promoted and intensified by free admission of atmospheric air, with oxygen, and water; and they all develop heat, which is imparted to the soil.

The rays of the sun, another natural source of heat, warm the atmosphere, which, entering a porous soil, raises its temperature.

The exclusion of atmospheric air warmed by solar rays and of rain water, by a saturated or compact soil, is sufficient of itself to refute the notion that the plants "burn up," when they only starve, and suffer for want of bottom heat.

It may seem of little importance to dispute about whether a plant freezes, burns, or starves under certain conditions, but it has always been deemed a hazardous practice to attempt the cure of a complaint, without a knowledge of its nature and cause.

What farmer is not anxious to know whether his languishing horse is burning, freezing or starving; or what father, as to what ails his child?

Yet how much more deplorable is the already recorded death of many thousands from famine, the consequences of which might have been averted by a competent knowledge of husbandry.

Had the same ruin been wrought throughout the agricultural globe, that has laid waste empires of our own country, universal famine would already prevail.

Through ignorance of laws, essayed to be unfolded in these papers, we have already seen rich agricultural districts, larger in area than England, run to barren wastes and cold unfenced broommead fields.

The same practice that has ruined Eastern and Southern States, and set them behind their daughters of the West, and driven our people "towards the sunset," ere long would blight the vast fields there, where the sun sets in the ocean.

It is true the alarming statement of facts, and the prognostication of like results from like causes, may be viewed as "sensational."

For even our national legislature, the chosen guardian of the public weal, has coldly surveyed, and reveled in the fleeting wealth of virgin fields, and fostered as bad as no schools, to correct the evil. It has seen without shame, and encouraged without remorse, the depopulation of one district or state, to build up another.

It remains to be seen how long we may listen to the syren song of now receding western homes, and embrace the phantom of permanent power and happiness, in the fleeting strength of a nation of shifting states.

But it is not the object to discuss public policy, but rather individual husbandry. The importance of thorough drainage and disintegration must be sufficiently clear from what has been said.

A few words as to the mode of promoting these and their inseparable companion, *porosity*, and this paper will be closed.

Plowing is the most universal mode of drainage. If of sufficient depth, it is sufficient in, perhaps, more than half the soils of the globe.

The roots of plants in a deeply cultivated soil reach to a great distance, and in their decay leave the soil permeated by the impression of their bodies in all directions.

During rainfall the water flows through these spaces, creating vacuums in the channels, into which fresh air rushes, which is again displaced by water, and again removed in the same manner, keeping an endless supply of fresh air and water.

Some soils, owing to their tenacity, or their position, are not sufficiently drained by these means. Aid is rendered by opening channels, called drains or ditches, through which the surplus water passes away. These are sometimes filled with stones which exert but little adhesive attraction, and these covered by half circles of clay, iron, and the like, affording a round roof to prevent the spaces from being filled by clay, or by hollow cylinders of like material. Through these means the surplus water is conducted to large open ditches, and thence to the rivers.

It is not intended here to give directions for the minutiae of draining the soil, but only a general idea of the principal features.

If nature has not furnished facilities in the constituents of the soil, or its position, for the escape of all the water, in excess of what capillary holds, within a short time after a usual rainfall, it must be supplied by artificial drainage.

The deeper the drains, the better. They should not be less than fifteen to twenty inches deep.

There is no danger of any number carrying off too much water or removing it too soon. The soil will hold a sufficiency by the principle of adhesion, called capillary attraction.

A practical writer and farmer has well said that "the form of a drain should be narrow, as affording the greatest area of porosity at the smallest cost, increasing the quantity of porous earth available to roots—nothing vegetable can exist in dense undrained soils;" that "there should be an open ditch for every seven or eight acres drained. The absence of open ditches is what renders so much drainage useless."

Drainage is necessary to the fertility of all soils. But as nature sometimes furnishes the

means, artificial devices are not always necessary. From this fact, we are told that drainage is necessary for some soils, and not for others; so, the same writers teach that lime is "adapted" to some, and not to other soils. Such treatment of a subject requiring the profoundest and most methodical investigation to systematize, is simply shameful. At a period when it is necessary to adopt *system* of thought and language, to avert calamities that have fallen on portions, and threaten other parts of our country, language implying that some soils grow plants without drainage, and some without lime, is fraught with evil incalculable. It is true that to the minds of those who know to the contrary, the implication may not arise, but it inevitably misleads the more numerous class, whom alone it is necessary to enlighten. Why frame language in seeming accord with the views of the enlightened, and misleading to those seeking more light? A true principle, so taught as to be misunderstood, is as bad as a false. From the legitimate stand-point of a teacher, overlooking the grand field of vegetable life and its sources, to say that sunshine and water are adapted to some and not to others, or that some soils will, and others *will not* produce plants in their absence, is no wilder from truth, and far less mischievous than that lime or drainage is adapted to some and not to other soils; because, of the former, everybody knows its falsity, and the ignorant will take the latter for truth.

The most comprehensive statement of the immediate object of drainage is *porosity*; its importance in reference to plant growth; its *universal necessity*. Its benefits would require a life-time to comprehend, and volumes to explain.

In its absence all fertilizers are vain; the greatest abundance of food will fail to produce a perfect plant in any soil, and every other condition, consistent with its absence, may be present, and still the plant cannot thrive. FREEDOM.

Bermuda Grass.

Messrs. Sam'l Sands & Son:

Sometime previous to my letter to the *American Farmer*, last month, on the subject of Bermuda grass, I had written to Col. A. J. Lane, of Macon, Ga., on the subject. Col. L. is, as you may remember, considered by Mr. Howard in his *Manual on Grasses* as good authority on the subject of Bermuda grass. After waiting a considerable time, I concluded I should not hear from him; therefore my letter to the *American Farmer*. Afterwards, I received a very interesting letter from him on the subject. As the *Amer. Farmer* was kind enough to spare a space for my letter, I have thought it would be only justice to your journal and readers to furnish you with his reply. I have, therefore, made extracts from his letter to me, of such portions as I thought would be of general interest, which I herewith forward to you for publication, should you regard it of sufficient interest to your readers.

The letter is a private one, but I presume in this case there would be no impropriety in publishing it with the author's name; if, however, there should be, and you desire to publish it, please omit the name.

Although but a novice in farming, I do not propose to let that, or anything else in the way of my business, master me, if thorough cultivation and strict attention will prevent. Still, I consider your remarks on the subject altogether apropos; for being forewarned, you know, is being forearmed. Nor am I willing that you should infer, as perhaps you might from my letter, that I am in search of something to improve my land while I remain idle. On the contrary, I am a user of lime, plaster, and fertilizers, with home-made manures to the extent of my capabilities. But with some 800 acres of poor land on my hands, I am anxious for all the means of improving them within reach. And I am inclined to hope much from Bermuda grass and sheep.

Respectfully yours, &c.,

WM. H. BROWN.

Prince William Co., Va., Aug. 16th, 1875.

Extracts from a letter from Col. A. J. Lane, in reply to W. H. B., in the August No. of the *American Farmer*:

Dear Sir:—Although Bermuda grass is unquestionably a grass peculiar to, and especially adapted to the climate of the south, I see no reason why it might not grow and flourish as far north as your locality. It is certainly worth a trial. For sheep we have no grass that compares with it. In fact upon most of our plantations in middle and southern Georgia, it will afford pasturage, and is capable of sustaining more sheep to the acre than any crop of which I have any knowledge.

In your climate (Va.) it will, if not killed by the winter freezes, afford good grazing from April to October. With us, in order to have winter pasture, sheep and cattle must be taken off in July or August. After which it grows sufficiently tall to afford very good grazing during the winter. It has a very small leaf, and is by far more nutritious than any grass of which we have any knowledge. Of course in latitudes where blue grass flourishes well, I would not advise the cultivation of Bermuda, as no other grass can compare with blue grass as a forage plant during the entire year. Bermuda is a substitute for blue grass, and has this advantage, and in this I apprehend it will be valuable to you only, that it grows comparatively well on poor land; whereas it requires rich land to produce blue grass. If, therefore, your land is too poor to produce blue grass, try the Bermuda.

I do not consider it valuable for hay, although the finest quality can be and is often made from it. It requires rich land to grow it large enough to be cut, and in that event it must not be grazed. Its great value therefore is for grazing, and not for hay. Whilst it is valuable, and seems especially adapted for sheep, it is also a fine grass for cattle and hogs. It is propagated only from the roots, and in your latitude March or April would be, I should think, the best time for planting.

Break up the land broadcast, upon which you intend putting the grass, just at the time you wish to plant it; mark off the rows about two feet apart, with a small plow; then drop the roots about two feet apart and cover with the foot, hoe, or plow. Let the roots be entirely cov-

ered. This should be done just after your winter freezes are over. And as soon as the grass makes its appearance above the ground, sheep or cattle may be turned upon it; hogs should not be allowed to run upon it the first year. They are very fond of the roots, and, if permitted to run on it, will exterminate it. After it becomes thoroughly rooted—which will be the second year—then any and every kind of stock may be turned on it *ad libitum*,—wet or dry. The closer it is grazed the sooner it becomes thoroughly set, and when it is once set, it requires no further attention, but will be greatly improved by having a top-dressing of such manures as are adapted to other grasses, once in every four or five years.

Wire and Bermuda Grass—Silk Worms.

Messrs. Editors of the American Farmer:

Upon further reflection and reperusal of your August No. I feel disposed to think that the "Wire Grass" of Mr. John G. Lane is the "Bermuda" under an alias, like many other rogues.

If W. H. B. will thoroughly plow his land after a liberal dressing of manure, check it off three feet each way, and bury a small slip of the Bermuda at each intersection, by the end of the year he will have a perfect sward of the Bermuda.

I have another grass, Duncan's Guinea, or the "seedless panicked millet," of Dr. Bachman, which I think will furnish the most grazing for cattle or horses of anything that I have ever tried, and their "name is legion." It grows by May with us four feet high, and all stock eat it greedily. How many times in a summer it may be cut I cannot say, but it must be many, and all stock are very fond of it, but hogs destroy it for its roots. It is propagated like the nut, Bermuda and Joint grasses, *i. e.* by stools or runners. I think it the most productive of green food of any grass "so called" that I know of. In the *Rural Carolinian*, of August, is an article by the Rev. C. W. Howard, about Lucerne and Bermuda grass, from Dr. St. Julien Raveue, of Charleston, (to whom I think that I furnished the samples of the Bermuda and Joint grasses.) In a previous No. of the *Rural Carolinian* there was an account of the incredible amount of ammonia furnished by Bermuda grass per acre.

Enclosed I send some eggs of "Arrhends" or Palma Christi (Bombyx Cynthia) silk worm, which is said to feed upon the Palma Christi in the East Indies and to produce a silk that descends from mother to daughter; but although Mr. John Akhurst, of 19 Prospect St., Brooklyn, from whom I received them, writes me that they ate greedily of the Palma Christi for him, yet for me the young worms refused to eat the leaves of the only two varieties of the Palma Christi (the white and the Africanus, or red) that I have. Their natural food is the Ailanthus, and as they are a hairy caterpillar birds will not destroy them, but, while young at least, they must be guarded against ants. If you cannot raise them, place them where they will "do most good." Probably if the young worms are fed for a short time on the leaves of the Ailanthus, they might eat the leaves of the Palma Christi. They do

not require to be raised in the house, but may be placed on the tree or plant.

The cocoons are two inches long and the silk so fine that it cannot be reeled, but is carded and spun like flax or cotton. The fabric is so lasting that a garment made of it outlasts one generation. As it requires neither care nor house room, but only the *Ailanthus* tree, and, may be, the *Palma Christi*, or castor-oil plant, many farmers might raise them, and as the eggs were produced in Brooklyn, the worm does not require a mild climate.

The drought has at last ceased and we have for some days past had daily thunder showers, quite enough to revive vegetation. It has been so protracted that large pecan and walnut trees that were never transplanted, have shed off nearly all their leaves; and while I planted cucumbers and squashes enough to feed freely to my hogs, I have lost seed of the former and just saved it of the latter, and have not yet had one single mess of tomatoes, (my favorite summer vegetable,) but by diligent watering have been able to keep the plants alive, and with favorable seasons hereafter may hope to make seed at least, even if I never get many to eat. The negroes will have a hard time the coming year,—as little, if any, of either corn or sweet potatoes can profitably be made.

With sincerest wishes for your own welfare, and the prosperity and extended usefulness of your journal. Your sincere friend,

ROBT. CHISOLM.

Beaufort Co., S. C.

P. S.—Upon opening the packet of the eggs I find nearly all hatched out, so it would be useless to send even these few that are not hatched, but if I live to see another year I will try to be prepared and in time.

Mr. Akhurst has also another variety of silk worm, the *Bombyx Myletta*, which feeds on one variety, I believe, of the oak, but which I do not know. I am very sorry about these eggs, as I hoped that you might have given them to some one who had one or more *Ailanthus* trees, and thus saved seed for another year, as these are the last for this summer.

R. C.

Our French Letter.

Messrs. Editors American Farmer :

Professor Sanson, of the Agricultural College of Grignon, is the well-known advocate of the theory of fattening stock to produce the greatest quantity of meat possible, by methodic feeding, in the shortest time. His writings tend to show that there is a stage in the fattening of animals, when the prolongation of the processes of fattening ceases to be remunerative, despite the animal's avidity for food. The latest experiment M. Sanson records, was that conducted on a Durham bull, tied up the 24th December last, in an ordinary shed with cows. The animal was not cut, weighed 15 cwt., and valued at fr. 358. The food consisted of beet, dried vetches, wheaten chaff, and bran. The same ration of the first three substances was continued throughout the 64 days the fattening was pursued, but after 21 days the original feed of bran, (14 lbs.) was increased one-half, and doubled during the last three weeks. After the second

stage of fattening, the animal increased in weight at the rate of 5 1-5 lbs. daily; during the last stage and with an increase of farinaceous diet, the flesh put up daily was about 4 1/2 lbs., gradually diminishing to 3 lbs. It was at this point the animal was sold to the butcher, producing 51 1/2 per cent. of meat as compared with its live weight, realizing fr. 581, being fr. 223 difference as compared with its value when put up. The food is valued at fr. 140, so that the net benefit was fr. 82, in addition to the manure.

Irrigation, &c., in Picardy.

One of the most interesting agricultural regions in France is that of which Amiens is the centre, because it not only exhibits great variety of soil, but also methods of cultivation. Yet in the time of Arthur Young, that traveller could find no agricultural merit in the district. As Picardy was the seat of so many wars, its backwardness is thus easily explained. At present it is a thriving seat of agriculture and manufacturing industry. To the native methods of cultivation, are joined those of Flanders and England; a large sea, or estuary board, and excellent canal and river accommodation, contribute much to the prosperity of the rural population; sixty per cent. of the land is devoted to the growth of wheat and industrial plants. Much bog land is tilled according to a system of root crops and kitchen gardening; having dried and levelled the soil, it is divided into parallelogram beds, 10 or 12 feet wide, each separated by a ditch or canal six feet in width, and connecting with the river. This canal serves to water the beds, and to receive all vegetable refuse, for the latter is never directly buried in the soil, being, as just stated, allowed to rot to form liquid manure. A three-course rotation is pursued, where salads, radishes, carrots, onions and leeks are alternated with potatoes, peas, cabbages and turnips; some cabbages weigh from 30 to 50 lbs.; beets from 20 to 30; turnips 12 to 18, and the Tournery radish from 12 to 24 lbs. A visit to the market will confirm these weights. The breeds of cattle are naturally adapted to this almost tropical production of green cropping, and where deep culture and high manuring go hand in hand. The Flemish breed of cattle is in great favor, although the Dutch commence to be more in favor. Prof. Sanson asserts these two belong to one and the same race, and where color seems to play an exaggerated part. The Dutch cow is an immense feeder, but then she can give as much as 40 quarts of milk a day, and from 20 to 30 is quite the ordinary yield. The Flemish cow has a greater disposition to fatten than the Dutch. The Durham breed is, however, preferred for fattening; when three years old, such an animal will be as ripe for the butcher, and twice fatter than a Flemish ox aged five years. To ensure this quality of precocity, crossings are in favor, and are found to distribute better that fat between the muscles, which in the Durham too often forms only a layer between the flesh and the hide. Sheep are not much reared in Picardy, but when so, the Southdown is preferred for its meat. At the Amiens agricultural show, sheep-shearing contests with the exhibited shears take place; forty minutes is the average time for clipping an animal; prizes are also awarded for wool exhibited in the fleece; osiers also are

entered for competition; by the intermittent drainage of marsh lands, the green osier can realize fr. 500 per acre. Pear and apple pulp, or paste, is a new agricultural product; it is highly prized, and if stored in a dry place will conserve the flavor of the green fruit for years. Five parts of water added to one of the paste, and boiled for 30 minutes, forms an excellent, healthy and cheap preserve.

The Cheese Product.

M. Paynel, of Caen, is one of the principal manufacturers of the famous Camembert cheese, of which he sends 100,000 every year to Paris, where they are sold for fr. 8 the dozen, or 13 sous a piece; now it takes two quarts of the best milk to make a Camembert, which represents over six sous the quart for the milk. M. Manetti, the director of the cheese station, or experimental farm, at Lodi in Lombardy, holds that the preparation of good cheese depends more on the farmer than the dairy maid; it is by attending well to the meadows, the forage in a word, that the excellence of cheese is determined. He shows that in case of two fields, side by side, of the same geological character, the soil of one was porous and friable, and produced excellent herbage,—the other was undrained and stiff, and the forage indifferent; when the animals were fed on the latter, the caseine was deficient and the milk turned rapidly; in the former, the contrary effects were produced. On analysis, the bad fodder was found to be deficient in mineral matters, alkaline phosphates above all. M. Manetti concludes, that to obtain good milk for cheese-making, every effort should be made to produce a forage rich in quality rather than in quantity.

Food for Winter Feeding.

Fodder will be again scarce this year, so that farmers are feeling themselves driven to sow maize, sorgho, Hungarian, moha, &c., all of which possess the property of resisting drought, and can be preserved in covered trenches, when well packed in a green state, air and rain excluded, for winter and spring feeding. The culture of green maize has revolutionized Belgian farming; it succeeds in all wheat soils, and ought to be manured, or succeed a manured crop; many sow some breadths every fortnight, from April to July, to have successive green cuttings; white mustard is a favorite autumn plant for milch cows with French farmers, and is familiarly called the "butter plant." After securing a supply of food, the next step is to ensure its economical consumption, that is, to present the aliments to the digestive forces of the animal, under such a form as to re-act without fatiguing, and to extract the largest number of assimilated elements. For example, in the case of grains, these do not nourish or fatten according to the quantity consumed, but to the proportion digested, or, in other words, assimilated, and to promote the latter, the food ought to arrive in the stomach well masticated and impregnated with the secreted fluids. To develop flesh, blood must first be made, for this is the source of organic growth, and fat blood can only be best obtained from rich food, administered in a moist form. In a dry state, alimentation demands too much effort from the digestive organs, and this is great even where the food is chopped or

crushed. Too much time devoted to mastication is so much taken from nutrition, for it is not when in the act of eating that the animal puts up fat, but when it digests. Food for cattle ought to be then steeped in boiling water, and allowed to ferment and cool for 24 hours; the mixture becomes slightly acid, a taste the animals do not dislike; a little salt added will not only excite appetite, but promote assimilation. All cattle diet can be thus prepared, chopped straw, cut roots, &c., mixed. In the case where twigs have been cut with their leaves, and stacked for feeding purposes, when hay, &c., is scarce, to sprinkle a little salt and water on them when put in the rack, will increase their palatableness.

Plants of the cruciferae order, as mustard, &c., impart a flavor to milk when given to cows in too large a quantity; but it is not yet established that there is a connection between the food and the color imparted to the milk; madder, if mixed with fodder, will impart a red tinge; carrots, a yellow; buckwheat and shave grass, a blue; but these colors are not developed until the milk has had some time to settle;—hence why many believe the oxygen of the air brings about the change, and to prevent which, some dairies add a little "butter-milk" to the fresh milk. There are colorings too in the milk, that the nature of the food cannot at all account for.

Irrigation of Meadows.

With the view of combating the drought in spring in the case of meadows, it is recommended to irrigate them as much as possible during the winter, when vegetation is suspended, save when the water is the product of melted snow, as in mountain districts. The constant trickling of water allows the accumulation of elements of fertility, which rapidly benefit the grass on the arrival of spring. It is well known that the grass along the border of a streamlet is of a dark green, proof of the efficacy of a running watering. It is an error to depend on spring irrigations alone, for at the moment when the grass commences to vegetate, little water is required; it demands only moisture, not wetness. The surface of a meadow ought to be so levelled that within an hour after the water has been turned off, one can walk on the grass in a pair of pumps without wetting the stockings. If the water accumulates instead of flowing, the good plants will perish, and reeds and sedges succeed, indicating at the same time the levelling to be incomplete. When the water is not of first quality some fertilizers can be dissolved in it, or liquid manure added. In Hanover, meadows in spring and after the first cutting, receive dressings of commercial manures, a short time before the water is turned on.

Miscellaneous.

Two methods are employed on the Continent to grow rye grass seed,—either to devote the second year's crop to that end, or to plow down after the first year, and sowing rye, sufficient of the timothy will sprout between the furrows, and can be allowed to ripen along with the rye, separating afterwards with a sieve. Sowing timothy in autumn alone for seed, is not a favorite practice.

Is it advantageous that heifers ought to produce the first calf when two years old? Small

farmers adopt this practice; large holders defer that event till the third year, alleging that such rest is essential for the development of the animal, and important when the intention is to employ the cow for breeding purposes only. Where the period of two years is adopted, the heifer cannot be too well fed.

I regret to have to introduce an agricultural fact with something like an apology. A German agriculturist, M. J. Swartz, of Hofgaarden, has 200 milch cows and 40 horses. Some years ago, in face of a penury of fodder, and aware that the cows had no repulsion for it, he fed them on the fresh excrement of the horses, and has since continued the usage. The practice is very common in Sweden. A cow receives at first, eight quarts of this fecal matter daily,—a horse yielding five times that quantity in the same period. M. Swartz affirms, that his Durhams cannot be surpassed in health, nor does the milk, butter and cheese possess the slightest bad taste. M. Lefler, of Staflosa, employs the same substance, mixed with beet pulp and chopped straw to fatten his stock, adding a little crushed grain at first to deceive the animals. He sees no more objection in converting the organic matter of fresh horse-dung into beef, butter, and cheese, than into succulent mushrooms; so, gentle reader, you may indulge in a smile or a shock as the fact strikes you.

The agriculturists at Toulouse suffer by the inundation of the Garonne a loss estimated at 200 millions of francs. The crops on 130,000 acres have been destroyed, and the surface soil washed away or covered with gravel. The valley was one of the gardens of France.

Paris, July 10th, 1875.

P. C.

Bermuda Grass.

An esteemed correspondent at Sheldon, S. C., writes:

"For the information of W. H. B., (August No., p. 293) of Prince William Co., Va., I would say that the Bermuda grass is pretty well known about here,—the streets of the town of Beaufort, which are high, dry and sandy, being carpeted with it. We have another grass here, often confounded with it, known as Joint Grass, having alternate and opposite leaves, and the roots reddish and greedily eaten by stock. The Bermuda has two leaves at each joint, with whitish, hard, wiry roots, hardly eatable. If W. H. B. cannot do better, I might undertake to supply a moderate quantity. His second question I cannot answer."

Wire Grass.

A Nansemond Co. (Va.) correspondent writes: We are here thoroughly, to our sorrow, acquainted with both wire grass and the nut grass—pests which materially influence the profits of cultivation of some crops in our fields and gardens. Wire grass makes, when well set, a good sheep pasture for two years; then it runs out for want of culture of the soil, except in spots. Several tons were taken off from my seven acres of peanuts this Spring by hook harrows—what we call "wire-grass devils,"—and the horse-rake. The one collects it from within top soil, and the other off the surface into windrows, like hay. It is cocked and burned, or used to fill galls on worn hills or ruts in farm roads.

The Presidency of the Agricultural College.

Messrs. Editors *American Farmer*:

Dear Sirs: In your admirable article on "The Agricultural College," in the *American Farmer* of this month, you seem to hold me in some way responsible for the appointment of Captain Parker to the presidency. It is only justice to myself, and I hope no want of courtesy to Captain Parker, to assure you that the appointment was made against my advice, and notwithstanding my earnest protest and remonstrance.

Yours truly, M. A. NEWELL.
Maryland State Normal School,
Balto., Aug. 13, '75.

[After the adjournment of the meeting of the trustees on July 1st, we were advised by Mr. Calvert, of the executive committee, that the Board had at least tacitly agreed to leave to Prof. Newell, the selection of the president, and that that committee would without doubt accept and nominate to the Board the gentleman named by him for the position; although Mr. Calvert said he did not know at that time who it was Mr. Newell had in view.

The fact thus within our knowledge that the Board had not only been willing to delegate the appointment to Mr. Newell, but that the committee by whom the formal nomination was to be made, was ready, in advance of knowing who his choice was, to ratify it, it was reasonable for us to assume—even if the nominee of Mr. Newell was from any cause not available, or declined—that no other person would be appointed without at least his hearty concurrence. Hence our surprise at what we considered the preposterous selection made; but that Captain Parker should have been elected in the face of the "earnest protest and remonstrance" of Prof. Newell, surprises us only the more; and we are glad to have this gentleman's disavowal of a step which, less than ever, commends the college to public favor.—*Ed. A. F.*]

The Agricultural College.

A gentleman of broad views and matured judgment writes us as follows concerning this institution:

"Viewed from any standpoint, past, present or future, the elements of success, as an agricultural school, so far as we can ascertain them from other successful institutions, are sadly wanting. As the editor of the first agricultural journal in the State, it imperatively devolves upon you to exert your influence by pen and word for the interests of agriculture, and especially for the training of the young men who in the future will engage in farming. Yourself and the college should work together in educating the masses, and I can conceive of no more noble and useful calling than teaching science, indispensable in our age to the highest success in a profes-

sion which, as frequently and truly observed, lies at the very base of individual, state and national prosperity. No enterprise, much less a college depending for existence on substantial merit in yielding profitable returns for time and money invested, can succeed permanently and increase in patronage, without the necessary element of public confidence."

Hungarian Grass.

A correspondent in Southeastern Virginia writes: The seed you sent me is true Hungarian grass, and was so called when I brought some samples four feet high to town by an Anglo-Canadian farmer—one of our new settlers. It was grown on rich land—no manure. The land was plowed in March, left rough; cross-plowed in June, seed sown and two-horse harrow used to cover it, and then orchard grass and clover sown and re-harrowed. My manager thought the team, in pulling the mower through it yesterday with very sharp blades, exerted a force equal to a wagon load of 2,000 lbs.; so you may judge of the swath cut. Turned and thrown in small cocks to-day, to-morrow I will house it after noon. I cut only one-half yesterday and will let the rest remain some days and save the seed from 25 feet by 200 yards, which I will cut with cradle and bind like oats. My impression is that it will be for this section a good forage crop to follow early Irish potatoes, grown for market. Hogs, I find, eat it greedily when green. From its behavior in the late severe drought, I think it will prove a sure cheap forage crop of fair quality as to life-sustaining properties in the Middle and Southern States, and may occupy the position of fodder corn for soiling North. So far as one can guess at present, I think 5,000 lbs. will be obtained per acre.

Curing Forage Plants.

The following from our Paris correspondent is timely. The season there seems to have been similar to ours here in the quantity of rain falling. We learn that the experiment of preserving green corn fodder in the way alluded to, will be tried by some of our Maryland farmers this year. We would be glad for more to attempt it on a small scale.

"The season continues to be very trying for the preservation of fodder, owing to the excessive humidity existing, which, at the same time, affects its nutritive value. The general practice at present in France is to dry the forage plants only partially, and to then pile in small heaps till fermentation commences to set in; afterwards to seize the first few bright hours that present themselves, to open out the heaps, when the humidity rapidly escapes. In putting into rick, fagots are preferred for ventilators. For after cuttings of lucerne, clover, meadows, &c., their texture being young and juicy, and humidity prevalent, they are made up into very small heaps, mixed with straw, and fagots employed as ventilators. The preservation of green food in trenches will be extensively practised this year in France; giant maize and mustard are the forage plants now most relied upon for fermented food in spring."

Crops in Queen Anne's—Cure for Rats Wanted.

Messrs. Editors American Farmer:

We are now enjoying almost daily refreshing showers, and the worm-cut fields of last May and June are beautiful to behold. Our fields of corn, except in cold, stiff land, which the April sun failed to warm up sufficiently to give vegetation a good start, have already surpassed what ought to have then been our most sanguine expectations. The season of late has probably been *too good* for the majority of our lands. It has caused the corn to shoot amazingly—more so than our lands have the richness to bring to perfect ears of grain,—consequently there will be much *snouty* corn. Our harvest will be heavier, I think, than it has been for ten years past, and had our lands one-tenth of the money that has been expended in commercial fertilizers, put in lime, and properly applied upon them we would have this year a corn crop that would surprise the natives.

My object was simply to ask through your monthly a question or so,—but I find I am running off. My dwelling and barn are both old time buildings (not so very ancient either) and are infested with rats. They don't seem really to destroy much about the house, and don't venture outside the plastering anywhere, except in my pantry, and if there are as many here as I believe there are, and they live upon what we miss, from casual observation, then they have slim appetites indeed, not at all likely to create a famine. They rarely, if ever, venture out of doors.

But, Mr. Editor, I should feel myself under many obligations to be informed of some sure, safe, effective way to rid myself, house, barn and premises altogether of these notorious vagabonds. I have small children, and have not as yet risked the use of arsenic or other poison, with a view to their annihilation.

Don't understand me to say that they are not destructive to my grain, when in the barn.—There, I am sure, I would meet with heavy loss did I keep it there for any length of time, and I do lose largely on what I am obliged to withhold for domestic purposes—certainly a good miller's toll on every bushel of corn. FELIX.

Queen Anne's Co., Md., Aug., '75.

[Can any of our readers suggest to our correspondent any effective plan of getting rid of his intruders, except by the use of poison?—*Ed.*]

DR. MANLY MILES, the distinguished and efficient professor of agriculture in the Michigan Agricultural College, has accepted the same position in the Illinois Industrial University, and the trustees say "it is expected that Dr. M., who has had the longest and, it is thought, the most successful experience as an agricultural professor, of any person in the U. S., will give a fresh and greater interest and value to agricultural education in Illinois."

Would a man like that be out of place near Bladensburg?

Gunpowder Agricultural Club.*Messrs. Editors American Farmer :*

The Gunpowder Agricultural Club met Aug. 14th, '75, at the residence of Joshua M. Gorsuch. When the hour allotted to the customary discussion arrived, Dr. Snodgrass, of Washington, Secretary of the Potomac Fruit-Growers' Association, who was present as a guest, addressed the club. He expressed himself gratified to meet the club, and still more gratified to observe the unmistakable signs of deep interest in its success manifested on the part of its members. There is an awakening abroad in the land among farmers. It has not always been so, and it rejoiced his heart to see the change. He thought his old friend and cotemporary, (referring to the senior editor of the *Farmer*, who sat near the speaker) shared his feelings. They had labored together in the effort to impress upon farmers the necessity and importance of closer association and concerted action. No enthusiasm attended the meetings convened by their endeavors. On the contrary those farmers who assembled in them were either listless participants, or hurried through the business routine in their haste to get away. But now how different! With pleasure and pride he beheld these earnest organizations dotting the length and breadth of the land,—promising a new, more enlightened and more prosperous era for agriculture and for agriculturists.

The growing of better crops, the steady improvement of the soil, are not the best results to be obtained by farmers' clubs—best of all they grow men.

In the elaboration of this idea the Doctor dwelt upon the great social, intellectual, assimilating, harmonizing influences of clubs, and to exalting their apparently minor advantages to the ostensible professional object had in view in their formation.

Touching on practical farming he disapproved the use of commercial fertilizers; he thought no aids in producing crops and enriching land superior to or cheaper than clover and plaster. He thought Eastern farmers should abandon wheat as a principal crop and substitute therefor fruit and the products of the dairy. In conclusion he read an original poem commemorating an incident of local notoriety concerning the planting of a shade tree. This poem embodied arguments encouraging the increase of trees of all kinds.

Mr. Sands replied to the allusions to himself made by Dr. S. In his advancing years he had not clung to life with inordinate tenacity. Of late, however, in view of the now exciting stimulants imparted to agricultural progress and research, both scientific and practical, and the dawning of long-cherished hopes for whose realization he had so long and apparently vainly labored, he is animated with a wish to have his days protracted that he may witness the developments of the coming era.

Mr. S. spoke at very considerable length, touching on a variety of topics. He expressed his satisfaction that the Berkshire breed of hogs, whose claims to excellence of reference he had many years ago persistently advocated, and which he was among the first to introduce, is

meeting with returning favor, and bids fair to supplant, as it should, all others.

He referred to and elucidated the important experiments of Prof. Stockbridge, of Mass. Agricultural College. He thought the results of those experiments the most promising and momentous in the agricultural progress of our day.

The results of the harvest were canvassed with following estimations, conjectured mainly so far as they refer to grain:

T. T. Gorsuch—Grass 20 acres, 40 tons. His data for an estimate of the approximate field of grain defective.

A. B. Scott—34 acres grass, 28 tons; wheat 18 acres, yield 150 bus.; oats average over 30 bus. Rye is turning out badly.

Edwin Scott—Cut 50 to 60 acres grass, 75 tons; wheat will run from 10 to 25 bus. per acre. Thinks his oats will average 50 bus.; rye 25 bus. Fultz heaviest.

D. Gorsuch—Grass 108 acres, 105 tons, clover and timothy; wheat (Fultz) average 25 bus.; rye 20 bus.

S. M. Price—Wheat will run from 6 to 22 bus. per acre—Fultz and Mediterranean. Rye 13 bus. average; oats 30 bus.; grass 85 acres, 85 tons.

B. McL. Hardisty—Wheat crop a total failure; sown late in Nov.; grass 1½ tons average per acre; oats 85 bus.

Jos. Bosley—Wheat, dozens, 1,800; rye fine (drilled in shock rows) where treated to phosphate. Oats will yield well; grass 70 to 75 acres—put at 1 ton per acre.

The hour for adjournment having arrived, the discussion of the subject chosen for the occasion was dispensed with. T. G.

Baltimore Co., Aug. 23, 1875.

The Granger Cultivator.*Messrs. Editors American Farmer :*

I have just read Mr. Dickinson Gorsuch's report on the trial of the Granger Cultivator. His report does such injustice to the Granger (which I am sure was not designed) that I extend to him and to you a cordial invitation to visit me at my farm any time in September, and I will prove to his satisfaction that the only intelligence required to work it successfully is common sense enough in a negro to drive a pair of horses and *not* to put his hands to the handles. I will then take you to the farm of Mr. Edwin Brown, who is one of the best farmers in this State (Virginia), and there satisfy him that it has done and will do as good work on hill-sides as it will do on level land. Take steamer Massachusetts on Tuesday or Friday evening at 6 P. M.; land at Harvey's wharf next morning. You can return on Thursday or Monday. Hoping to have the pleasure of seeing you (Messrs. Editors and Mr. Gorsuch) soon, I am yours truly,

R. L. HARVEY.
Northumberland Co., Virginia.

HEAVY CROPS OF WHEAT.—Col. Jno. R. Emory raised, in Queen Anne's Co., Md., this season, over 5,000 bushels of wheat; and Mr. Wm. McKenney, in the same county, something like 12,000 bushels.

Live Stock.

Indigestion in Cattle and Horses.

M. Pety, a French veterinary surgeon, draws attention to the liability of horses and cattle suffering from indigestion, from the consumption of forage in a humid or musty state. It is from over-feeding this complaint is ordinarily produced, or to the too rapid transition from dry to unlimited green food. Another very common cause is, the putting of animals to work immediately after their feed. The giving of chaff and the refuse of the threshing machine is also another principal source, as well as excessively cold water, and, above all, allowing the animal to drink the water of marshes. A little salt or handful of meal is excellent in the drinks. Old animals ought never to be given too much food at once, and it should ever be mixed with a little straw. When the horse shows symptoms of indigestion, restlessness, suddenly refusing food, resting on one leg, then on another, the head drooping and seeking the left flank, its excrements either hard or liquid, &c., an excitant as three ounces of kitchen salt or a glass of gin in a bottle of water will afford relief; or an infusion of chamomile and sage. In case pain exists two spoonfuls of laudanum will prove excellent. Of course soap injections, friction and fumigation, are not to be overlooked. Bleeding in case of grain indigestion, becomes mortal.

When to Buy Sheep.

The *National Live Stock Journal* says on this point:

As a rule, the best time to buy is in the late summer—as flock masters who have kept their sheep through the winter prefer to shear them before selling. It is usually most profitable to do so. After the first to middle of August, the lambs are ready for weaning, and the farmer knows pretty well what the increase of his flock is to be, and also what his crops of grains and grasses will allow him to winter properly. The season's yield at home also affords the buyer a better opportunity for gauging the number of stock to suit the probable contents of barn and granary. Ordinarily, where one seller of sheep can be found in the spring, ten can be found in the late summer or fall.

Breeding from the Best.

A correspondent of a Western paper says: Nothing can be more penny-wise than the practice of many of our farmers of breeding from scrub or grade boars. To the farmer who breeds ten or more sows, a thoroughbred boar is cheaper at \$50 than a grade boar at nothing, even if the hogs are all to be fattened. A single dollar on each pig would make up the money, and I am confident that in many cases I have seen a difference of five dollars each with the same care between thoroughbred hogs and those that have been bred hap-hazard. On hundreds of farms to-day can be found stock hogs a year old that will not weigh over eighty pounds each, and that are not ten pounds heavier than they were in December, and if offered for sale now, would not bring over five and a half cents per

pound—and they have probably consumed as much grain as the breed of hogs that at the same age weigh two hundred pounds, and are worth seven cents per pound.

The man who is carefully breeding pure stock is a public benefactor, and ought to be well paid for what he offers to the public, for it is valuable. Such men should be patronized and encouraged, for the farmer cannot do without them. In the good time coming, more attention will be paid to this matter than at present. Not only should this question be discussed in the Grange, but the members should co-operate and purchase such animals as will improve their stock.

Sheep on the Farm.

Sheep are undervalued by the mass of land-holders as a means of keeping up the fertility of the soil and putting money into the pockets of the farmers. The moment one begins to talk of sheep husbandry, the listener or reader begins to look for wool quotations, as if the wool is all that yields profit from sheep. One might as well look for wheat quotations alone when there is talk about the profits of farming.

Sheep on a farm yield both wool and mutton. They multiply with great rapidity. They are the best of farm scavengers, "cleaning a field" as no other class of animals will. They give back to the farm more in proportion to what they take from it than any other animal, and distribute it better with a view to future fertility of the soil. Prove this? There is no need of proof to those who have kept sheep, and know their habits and profits they yield. To prove it to those who have not had the experience, it is necessary they should try the experiment or accept the testimony of an experienced shepherd.

The Sheep Bot-Fly.

For some unknown purpose there is a fly in existence known as *Oestrus ovis*, or the sheep fly. At this season the flies deposit their eggs just within the nostrils of the sheep. The eggs soon hatch, and the grubs crawl up the nose and lodge in the frontal sinuses. Here they remain, causing much inconvenience to the sheep. The only remedy is to keep the sheep's noses smeared with tar while the fly is in season. Some shepherds blow tobacco smoke up the nostrils, which causes the grubs to let go their hold and the sheep to sneeze at the same time. In this way the grubs are dislodged and got rid of.—*New York Times*.

About Sick Animals.

Nearly all sick animals become so by improper feeding, in the first place. Nine cases out of ten the digestion is wrong. Charcoal is the most efficient and rapid corrective. It will cure a majority of cases, if properly administered. An example of its uses: The hired man came in with the intelligence that one of the finest cows was very sick, and a kind neighbor proposed the usual drugs and poisons. The owner being ill and unable to examine the cow, concluded that trouble came from over-eating, and ordered a teacupful of pulverized charcoal to be given in water. It was mixed, placed in a junk bottle, the head turned upward, and the water turned downward. In five minutes improvement was visible, and in a few hours the animal was in pasture quietly grazing.

Another instance of equal success occurred with a young heifer which had become badly bloated by eating green apples after a hard wind. The bloat was so severe that the sides were almost as hard as a barrel. The old remedy, salaratus, was tried for correcting the acidity. But the attempts to put it down always caused coughing, and it did little good. Half a teacupful of fresh powdered charcoal was given. In six hours all appearance of the bloat had gone, and the heifer was well.—*Live Stock Journal*.

Agricultural Calendar.

Work for the Month—September.

The work to which the farmer's hand is now turned is of such a character, that nothing will make amends for present neglect or imperfect preparation. We hope that every reader of the *Farmer* will, as far as lies within his ability, perform well and in good time the operations which are before him.

Wheat Culture.—For wheat, clayey loams to stiff clays are the best soils, and the presence of lime in appreciable proportion tends to the increase of the crops. Its presence in the soil is considered by some farmers, notably by the late Hill Carter of Virginia, as a tolerably sure preventive of rust. Lighter soils than those named often yield good returns of wheat, but it is almost invariably found that they are strongly impregnated with the calcareous principle.

The deep and thorough preparation of the soil is an essential to success in growing this grain. Careful plowing and pulverization undoubtedly increase the yield in soils of even moderate fertility, and in an increasing degree in those of greater richness. This, by separating the particles of the soil and admitting to their fullest effect the influences of the atmosphere, the rains and dews. Besides this, the superfluous moisture so injurious to the plants in winter, the season of suspended growth, the more readily escapes—this being always an *essential* to successful wheat culture. This crop will not endure wet land, and it is useless to attempt to grow it on land not drained either by nature or art. Provision must be made both for underdraining and for the rapid passing off of surface water.

Plowing for wheat should be done as early in the season as possible, and the land ought to be harrowed and cross-harrowed, but it ought to have time to become compacted before seeding. The use of the roller is very advantageous in the preparation of the ground, and is too much neglected. As far as possible the land ought to be cleared of stones and clods.

Where lime is not naturally present in the soil it ought to be added, but it is very unwise to plow it under deeply,—the best plan being to keep it as near the surface as possible. The addition of ashes to the lime spread is an advantage to almost every soil, they being one of nature's own fertilizers, apparently adapted to every crop and every soil. Both these sub-

stances contribute to the growth directly of the plant and make other ingredients available, especially in rendering *silica* soluble.

A clover ley gives the best promise of a good crop, the roots of the clover containing large quantities of nitrogen, an element indispensable to the growth of the cereals.

The heavy use of barn-yard manure is objectionable with the wheat crop, creating a tendency to lodging and rusting. When applied it ought to be well rotted or composted, and if plowed under at all, only shallowly.

Wheat needs some stimulating manure to give it a push forward in the fall. Where rough and undecomposed stable manure is used it is preferably applied to the surface. An additional advantage in its use in this way is that the straw parts which are not at once broken down act as a mulch to, and protect against the cold winds and alternate freezings and thawings, of the young plants.

In the way of fertilizers, nothing to our mind exceeds in value a mixture of good Peruvian guano and bone dust, in the proportion, say, of 50 lbs. of the former to from 200 to 300 lbs. of the latter to the acre. The guano furnishes sufficient ammonia to give the plants a start and its phosphates are soluble enough to serve for their use during the fall; whilst the moisture of the soil in winter so prepares the bones that the warmth of the air and sunshine in the spring decomposes and makes available not only the ammonia but also the phosphoric acid of the bones. The same result is obtained, and perhaps with more certainty of gradual and unremitting action, in the use of ammoniated superphosphates. Any good article in doses of from 200 to 300 lbs. to the acre ought to yield more than double its cost, and the expense of application.

The past season was one very profitable to the employment of artificial fertilizers, and with very rare exceptions the profit in their liberal use was unquestioned and decided. What the Peruvian guano now coming in is worth we cannot say; but the chemical tests are said to show very unfavorable results.

The distribution of the fertilizers by the drill attachment is commended as securing greater uniformity and requiring a less quantity. The manurial materials are placed contiguous to the sprouting grains and their solutions are at once taken up when most needed by the young plants.

In most seasons the use of the drill in seeding is advantageous. This was conspicuous, generally, last fall, though at the East Penna. Experimental Farm, from the results given in our last issue, the reverse was true. As a rule we believe the economy of labor and time, the regularity of the work done and the saving of seed, all combine to favor the use of the drill, while the comparative exemption of drilled grain from winter-killing speaks loudly in its favor. A suggestion of Mr. Geddes, given elsewhere in this issue, and always offered by him with emphasis, that the drill be run across the direction of the prevailing winter winds, deserves attention. The quantity of seed drilled in this vicinity varies from 5 to 8 pecks, according to the quality of the land; the poorer the land, the more seed used. When sowed by hand broadcast, 8 pecks are mostly

used. When the seed is plump and large more seed is used than when the grains are small and shrunken.

The time of sowing in this latitude is from the 25th of this to the 15th of next month. Earlier sowing than the first date incurs liability to injury by the fly; later sowing runs a risk of loss by rust.

The preparation of the seed for sowing to secure it against smut is generally accomplished by dissolving blue vitriol in water (say one-quarter of a pound to a bushel of seed dissolved in as much water as will thoroughly moisten the seed) and pouring it over the wheat. Steeping the grain for a few minutes in a brine strong enough to bear an egg and skimming off the filth and light seeds as they rise is another plan. When the seed is taken out it is rolled in powdered quicklime, which kills the seeds of the parasites.

A process comes to us from our French correspondent, which we annex here, as at least worth a trial. There, as here, to rid seed wheat of smut and rust, it is the usual practice to steep it in preparations of lime, salt, &c. The agricultural society of Allier recommends instead, the dissolution of nine pounds of Peruvian guano in 22 gallons of water, allowing the grain to steep for 24 hours, skimming off the bad seeds, and rolling the remainder in dried guano, previously treated with sulphuric acid, according to the Oblerdorf process.

Of varieties there is generally some local favorite. The past season the Fultz wheat has done well in almost every quarter, whilst many still stick to the old red Mediterranean, which, if a little coarse and thick-skinned, is generally reliable and not subject to rust or fly. The Tappahannock maintains its reputation in some sections, and the newer wheats like the Diehl and Clawson are being introduced into wider use. We are always pleased to hear of the experience of our friends with the newer kinds, and hope they will give us the results attained.

Rye.—This crop ought to be put in as early as can be done. We had something to say concerning its uses and profits in last month's notes, to which we refer. Besides its profit as a grain crop it is useful in giving early pasture for calves and sheep, as well as furnishing the earliest green food fit for cutting for stall feeding.

In land not in good heart, some addition ought to be made in the way of fertilizers such as bone dust and ashes. Salt and plaster might also be added with advantage. From two to three hundred weight of superphosphate will aid in securing a crop. From four to five pecks of seed are generally sown to the acre, but where the crop is raised for soiling it is customary to sow thicker,—say two bushels. In that case the earlier it is sown the better, and for the best results some good manure ought to be added.

Meadows.—Land intended for timothy ought to be in good condition, both as to fertility and mechanically. That grass needs a good soil. A good preparation is to turn under shallow a dressing of well-rotted stable manure, and apply afterwards, lightly harrowing in, some good superphosphate or a mixture of bone-dust and ashes. Sowing timothy by itself, half a

bushel of seed is not too much, and it ought to be put in now as early as possible. Of mixed grasses a mixture of 1 bushel orchard grass, $\frac{1}{2}$ bushel each Kentucky blue grass, Perennial rye grass, and tall meadow oat-grass, $\frac{1}{2}$ peck of timothy, 3 lbs. white clover, and 1 lb. sweet-scented vernal grass is recommended. The light grass seeds ought to be sown in two directions to secure evenness of distribution. It is also well to dampen them a little.

Curing Corn Fodder.—This is best accomplished either by cutting and allowing to lie on the ground for two or three days and then put up in good-sized shocks, tying firmly around the top, or by piling *thickly*,—say a foot or eighteen inches deep—against fences, the sides of the barn, or other convenient places. In either way it will cure rapidly, and though the outside will be weather-beaten and look black, the inside will cure without moulding and retain its sweetness and green hue.

Manure Making.—Give as much attention to this very important matter as other duties will allow. Husband in every way the waste materials on and about the farm, the garden, the woods, and from the house and out-buildings. Mix all the litter and slops, road scrapings, weeds, muck, ashes, &c., with alternate layers of manure from the stables, the pig pens or the chicken house, and give all occasionally a dusting of plaster. Keep all these materials in a dish-shaped hollow and endeavor to conduct into it all the liquid manure from the stables. If the mass can be turned over occasionally it will help to break down and intricately incorporate all the mass.

Planting Orchards.—If this work is to be done this fall begin your preparations at once by deep plowing, and, if possible, subsoiling.—Land ought to be selected which is well drained naturally and in good heart. If manure has to be applied use such only as is well rotted—not green and undecomposed. Ashes and bones are particularly useful as fertilizers for orchards. Order your trees early and put not your trust in tree peddlers, however beautiful their pictures and glib their tongues. Select such varieties as are found, by experience, to succeed in your vicinity, and send your lists to be filled by reliable nurserymen.

Vegetable Garden.

Clear off the remains of old crops, and burn all weeds and accumulating litter. Cabbage should be kept hoed. Seed of that intended to be wintered over is sown in this vicinity from the 20th to 25th of the month, the plants being set out about the 1st November on the sheltered sides of ridges running as near as may be northeast and southwest. As spring opens these ridges are worked down gradually so as to inure the plants to the winds. Early York is a favorite old kind, now largely superseded by Early Wakefield and Early Winnigstadt. The seed of cauliflower is sown about the same time and wintered over in cold frames. Celery should be earthed up when dry, care being taken to prevent earth getting into the hearts of the stalks. German Greens are to be sown in good soil from the beginning to the middle of the month. They are generally sown broadcast. Lettuce may be sown

in a sheltered fence to winter over. Spinach is sown about the 15th or 20th, in good ground, in drills 16 inches apart. Turnips may still be sown early in the month. Winter radishes are sown in drills; the Chinese rose is a popular sort.

The Dairy.

Dairy Cows as affected by Breed and Feed.

From a paper entitled "Physiological Considerations concerning Feeding for Butter and Cheese," contributed by Dr. E. L. Sturtevant to the Report of the Conn. Board of Agriculture, and for which we are indebted to the author for a copy, we extract the following summary of the conclusions he has reached after patient and ingenious inquiry as to the influence of breed and feed:

1. That the production of butter is largely dependent on breed.
2. That there is a structural limit to the production of butter, to each cow.
3. That when the cow is fed to this limit, increased food cannot increase the product.
4. That the superior cow has this structural limit at a greater distance from ordinary feed, and more ready to respond to stimuli, than the inferior cow.
5. That consequently the superior cow is seldom fed to her limit, while the inferior cow may be easily fed beyond her limit, and as a practical conclusion, increased feed with a superior lot of cows will increase the butter product, but if fed to an inferior lot of cows, waste can be the result.
6. That the character of the food has some influence on the character of the butter, but even here breed influences more than food.
7. That there is no constant relation between the butter product and the cheese product.
8. That the casein retains a constant percentage, and that this percentage does not appear to respond to increase of food.
9. That the casein appears to remain constant, without regard to the season.
10. That increase in the quantity of milk is followed by an increase in the total amount of casein.
11. That insufficient feed acts directly to check the proportion of butter, and has a tendency to decrease the casein of the milk and substitute albumen.
12. That the best practice of feeding is to regulate the character of the food by the character of the animals fed; feeding superior cows nearer to the limit of their production than inferior cows; feeding, if for butter, more concentrated and nutritious foods than for cheese; feeding for cheese product succulent material which will increase the quantity of the milk yield.

The Jersey as a Dairy Cow.

Col. Geo. E. Waring, Jr., in his prize essay on Jersey cattle, says the primary object in breeding the Jersey cow is, as in the case of all other dairy races, to secure a good cow—that is, a good milk giver; and the first point to be regarded is to see that those characteristics which in all cows

indicate large milk-giving capacities are permanently preserved, and those which denote a tendency to the production of fat in the carcass and the production of beef—that is, the grazing quality—be avoided.

It may be taken as an axiom applicable to all cows, especially during the first three or four years of their lives, that a tendency to beefness is objectionable where the highest yield of dairy products is desired. In all works on cattle we find general directions for the selection of milking cows, which do not vary materially, and the leading principles of which should always be borne in mind. The description is given in "Flint's Milch Cows and Dairy Farming" in the main as applicable to Jerseys as to any other race, and the reader is referred to this well-known work.

We may all criticise the description there given, however, in some of its points, not only in considering the Jersey cow, but equally in examining other breeds. Small short-horns are prettier than the long-horns; but in every race many of the best dairy animals have horns which, while not coarse, and while of excellent color, are long and rather wild growing. Among Jerseys, especially, many of the best animals have horns nearly black, and the quality of glistening is generally the result of accidental or intentional friction. That the neck should thicken as it approaches the shoulder is a statement that should be taken with some conditions. All necks do so thicken, and probably the less prominent this characteristic the better the animal; it is too often the beginning of beefness. Precisely what is meant by well-formed across the hips and in the rump should be explained. As a matter of symmetry, a straight rump and evenly made hips are very desirable; but some goose-rumped cows, with very ragged hips, are most excellent milkers. The prominence given by Mr. Flint to the veins of the perineum accords with the practice in Jersey, where a great point is made of the size and knotted character of these vessels, when developed by arresting their circulation by pressure.

There are some minor points of an empirical character which may or may not be of value, but which some practical dairymen rarely disregard. One of these is that the curtain or fold of skin below the flank should extend well down over the udder, and that the recess between it and the udder should be deep, this skin being also very soft and flexible. Another is that the skin on the belly immediately in front of the udder should be loose, soft and easily drawn into deep folds. These are, after all, only indications of that general looseness of the hide which seems to belong to the more productive milkers of all breeds.

The Poultry Yard.

On the Care of Poultry.

Dr. A. Dickie recently spoke on this subject at a meeting of the Doylestown Farmers' Club. There is much valuable information contained in his remarks. He said:

There are two obstacles to raising poultry, one of which is the disease known as gapes and

the other is the chicken cholera. The former can be cured, and easily managed, and he thought the other can be also. The cholera is sometimes sporadic and sometimes epidemic. When it is epidemic there is some special cause for it. The Asiatic cholera in the human species follows certain lines of travel, and is apt to occur most frequently in thickly populated sections. The primary cause of the disease is not certainly known, but it most likely exists in the air. Poultry cholera is doubtless similar in its nature. We find that it is most prevalent where large numbers are kept together. While we do not know the essential causes, there are immediate influences that are pretty certain to produce this disease in poultry, and which may be removed. For instance, the houses where chickens are kept should be clean, all filth removed frequently, and their quarters kept clean and nicely whitewashed. The next thing to be looked after is the food. Chickens should not be fed whole corn, especially in hot weather. They should be watered frequently, as they become very thirsty when it is warm, and will even drink manure water when they can get nothing else, and this will produce cholera. A proper diet is very important in keeping off cholera. Chickens should be fed twice a day, and the younger ones oftener. Cracked corn or other grain with wheat bran should be the principal food. He did not think the disease contagious, and instanced the case of his neighbors having sustained great losses of poultry from the cholera, while his own were entirely free from it, although they had run together in some cases. These had all breathed the same atmosphere as his own, but they had been allowed to run in barn-yards and had partaken of improper water, and had been huddled together too closely. To avoid cholera, therefore, chickens should be kept in clean quarters, fed regularly but not too often, let them have plenty of pure water, and do not keep too many together. The preparation known as the Douglass mixture, composed of a solution of copperas in water in the proportion of an ounce of copperas to a half gallon of water, was recommended. This should be mixed with the food at the rate of one gill to twenty-five chickens of all sizes. Dr. Dickie remarked that some breeds of poultry are apparently exempt from the disease. The large breeds of chickens are more liable to be attacked with it than the small ones. Several cases were cited to illustrate this peculiarity of the disease. The Leghorns he had found to be entirely exempt from the cholera. Turkeys will take the disease the same as chickens, and they require the same management. In reply to an inquiry on the subject, Dr. Dickie said that oats are a good food for fowls. Potatoes boiled, mashed up, mixed with a small quantity of wheat bran and sour milk, make a good feed. In answer to a further question he said that he did not think there is any danger of the chicken business being overdone. It was stated that the annual product of the poultry in Bucks County, including eggs, is about \$2,000,000 annually. Dr. Dickie was very emphatic in the opinion that there is no business that promises a better return for the money invested than the poultry business. In reply to

the allegation sometimes made that the common barn-yard fowl is just as good as any, he said that he had found by experience that such is not the case. At the suggestion of the members, Dr. Dickie gave somewhat of a detailed account of the pathological condition of the chickens that have died with the cholera, gathered from post mortem examinations, from which he had concluded that the disease is a blood poison. In reply to a question as to what it will cost to produce a dozen eggs, Dr. Dickie said that he had raised them for three cents per dozen, and this had been done in the month of February. The question was asked why chickens do not lay in the winter, to which it was replied that it is because they are not taken proper care of. Chickens must be properly sheltered and fed in cold weather in order to produce eggs. Animal food is occasionally necessary, and sour milk is the simplest form of this kind of food. They should not have too much whole corn, but a variety is necessary.

Horticulture.

Maryland Horticultural Society's Exhibition.

The annual show of this society will be held in this city, on the 22d, 23d and 24th instant, in the armory of the 5th Maryland Regiment, a very capacious and handsome hall, exceedingly well adapted to the large and beautiful display which may be expected.

The officers of the society are actively engaged in preparations for the exhibition, and the promise of its proving both interesting and successful is very encouraging. The initial exhibition last year, though only an experiment, proved very gratifying in its results, and the one now approaching is undertaken with no misgivings as to the support of our citizens, both as visitors and exhibitors. We believe that the display of flowers and plants, fruits and vegetables, will be such as will reflect credit upon the refinement and enterprise of the horticulturists of Maryland.

All varieties of fruits are so abundant this year, and the season has been so propitious for fine vegetables, that we hope every part of our State will be represented. This association is not a local institution, nor a mere plant society, but is meant to be an active working body,—comprising among its objects the advancement of flower, fruit and vegetable growing as branches of horticultural industry,—and we hope that every reader of this journal who has fine specimens of any of the products of the garden, whether fruits, vegetables or flowers, will not hesitate to send them in.

Even if prizes are not offered for such articles, they will find a place and be gratefully received.

by the committee in charge, and, if desired, returned after the show to the owner.

Every deposit of this kind will help to illustrate the capacity of the soil and climate of our State, whilst it will also bear testimony to the skill of the grower.

The hall will be thrown open to visitors at 2 o'clock Wednesday afternoon, 23d inst., but it is in contemplation by the executive committee to delay formally inaugurating the exhibition until night, and to invite some gentleman to deliver an appropriate address on the occasion.

The armory in which the exhibition is to be held will be handsomely decorated and many rare specimens will be shown. Amongst them will be conspicuous foliage plants; the giants of tropical vegetation; others curious in their forms or interesting from their economic uses, and, as all will be carefully labeled, the collection will be instructive as well as pleasing. We hope all of our readers who can do so, will visit the show, which undoubtedly will be the finest of its kind ever held in Baltimore.

All persons desirous of obtaining the schedule of premiums can do so by calling upon any of the officers of the body, or they may be had at the office of *The American Farmer*.

The annual election for officers will be held on the second evening of the exhibition.

The committee in charge of the exhibition consists of Messrs. John D. Oakford, (chairman,) and James Pentland, Andrew L. Black, Henry Taylor, Charles Reese and J. Edward Feast.

The American Pomological Society.

Hon. W. C. Flagg, the secretary, writes us that he "hopes to see the fruit, fruit-growers and editors of Maryland, all properly represented" at Chicago on the 8th instant, when the biennial meeting begins. A circular which he encloses, says:

"The Society will hold its meetings for discussions in the Grand Pacific Hotel. These will be attended, as heretofore, by leading horticulturists from all parts of the country.

Under the auspices of the Illinois State Horticultural Society, there will also be held, in the Inter-State Industrial Exposition building, a NATIONAL EXHIBITION of the fruits and other horticultural products of North America. Seven thousand square feet of space in the south end of the main floor and gallery of the great Exposition building will be assigned to the various States, Territories and Provinces; and in the space assigned to each State, Territory or Province will be arranged the State, county, society or individual collections contributed therefrom. It will be our effort to have every section of the country from Nova Scotia to California, and from Key West to Oregon, suitably repre-

sented in a truly continental exhibition of fruits; and to this end we solicit your personal effort and influence to secure a complete representation of your fruit products.

Upon the same day, and in the same building, the great Inter-State Exposition of the Arts and Industries will begin its four weeks' exhibition. *Free tickets*, admitting them to all parts of the Exposition during the convention, will be issued to all members of the American Pomological Society and to the contributors of fruits for the Exhibition.

In immediate proximity is the Floral and Plant Department of the Exposition, for which we also solicit contributions from those within reach, that it may be made to correspond in quantity and quality with the Fruit Exhibition.

The Wilder Medal of the American Pomological Society will be awarded for meritorious objects.

As it is anticipated that hundreds of thousands of people will visit this grand show of fruits, in connection with the great Exposition, you will recognize the importance of having your own State and locality represented."

Mr. Wm. D. Brackenridge, Vice-President for Maryland, and its representative on the General Fruit Committee, has prepared his report, having received the aid of a number of our prominent fruit-growers, and is getting together a handsome collection of such fruits of the State as will bear transporting the long distance to Chicago.

The *Maryland Horticultural Society* has appointed a delegation to represent it at the meeting, and has instructed them to press upon the attention of the Society the advantages offered by Baltimore as a suitable place for the next, or a later meeting. The committee consists of Messrs. Wm. D. Brackenridge, James Pentland and August Hoen.

Practical Orchard and Garden Experience.

Messrs. Editors American Farmer:

"It is the business of the horticulturist," says a good writer, "to assist nature in giving us fruits, flowers and vegetables of the most desirable and finest qualities." In order to do this the skill, experience and scientific knowledge we may have, or that is within our reach, should be employed. "He who knows most in any pursuit will generally succeed the best," and horticultural pursuits will not prove an exception.

It is a maxim often quoted, that he who makes two blades of grass grow where only one grew before, is a public benefactor; and, we may be allowed to add, that he who will induce one person to plant a tree who never did it before, has a just claim to the same honorable title, provided he attends to its culture, and does not let the cattle browse on its branches and foliage.

In transplanting during dry weather, especially if the roots have been out of the soil for some time, they should be puddled in a solution of soil and water. When so treated, they will live and

grow freely, and generally without further waterings.

We have few ideas from English authors on the management of transplanted trees in dry soils. It is presumed they know but little about it; their own soil being nearly always moist, there is no necessity for such knowledge. We have learned, from experience, what is best to be done, and are compelled to exercise some skill and judgment in order to effect successful planting.

It is recommended in very dry weather to give recently transplanted trees or vegetables one good watering, sufficient to wet the ground to the depth of at least two feet, and in the case of trees, mulch immediately with manure, dry soil, inverted turf, grass, rotted straw or other material. This saves other waterings, unless the drought is exceptional. The only drawback to mulching is, that injurious insects may take shelter beneath it, and, in that case, the remedy is to remove the mulch late in the fall, and, with the spading-fork, stir the soil and expose them to freezing.

To render young grafted trees stocky and vigorous, set them in their places as young as possible—say one year from the graft; it saves labor, and every rootlet may be preserved, and growth is not delayed. In fact trees of this age outstrip those of two or three years, and, at the end of four or five years, will often become the finer and larger trees.

It should be remembered that a young orchard well cultivated will make twice or thrice the growth in one year of one of the same age in weeds or small grain; even clover should not grow immediately under the trees.

When, by cultivation, the trees are kept *clean* and the soil *close* about their stems, the danger from insects is greatly lessened; and, unless the eggs or larvæ are already there, no danger from this source is apprehended. This is particularly applicable to the peach tree. We have also found that a handful of earth or red or white clay, different in color from the soil, placed close around the stems of peach trees is objectionable to the fly that deposits eggs, and unless the eggs or larvæ are already there the tree is safe from the grub.

In central Virginia peach grubs of all sizes are most numerous about the first of August, and, if not destroyed by hot water or the knife, they will very soon poison and exhaust the tree, causing its death by the next season.

In garden culture the thinning and weeding of plants should be done at an early stage of their growth. No weeds should be allowed to seed in any garden; and no stable or barn-yard manure should be used except that which has been well fermented and rotted, and thus the vitality of the seeds destroyed. Garden soils that are too heavy and close, may have their porosity restored by the liberal use of barn-yard or stable manure during winter. Lime, in reasonable quantity, will have the same effect.

J. FITZ.

Kenrick Depot, Albemarle Co., Va.

PEACHES FOR EUROPE.—On the 26th ulto. a steamship from Philadelphia, for Liverpool, carried out in her cargo 2,400 boxes of peaches—the steerage of the ship having been turned into a refrigerator, lined with ice and provided with fans for ventilation.

Notes from La Revue Horticole.

(Translated for *The American Farmer*.)

BY NANSEMOND.

A New Fuel.—Substitution of Lime for Coal.

The editor of the *Revue*, commences an editorial as follows:

"If we are well-informed—(and we have every reason to think that our information is correct)—we are on the eve of a grand industrial revolution, which, as all facts of this kind, will cause commercial perturbation; the ruin of some, the fortune of others, but which, as occurs always, will profit humanity. The fact of which we wish to speak is the substitution of carbonate of lime for coal as a means of furnishing heat. It will be the utilization of the considerable quantity of caloric contained in anhydrous lime, which at present is disengaged in pure loss at the lime-kilns, where they burn it, or rather when they slack it after being burned, in order to form a sort of paste—(mortar)—a form under which by adding sand and water it is prepared for building purposes."

"We shall not describe the various uses in industry that can be made of this abundant heat, which in place of destroying, will be productive; we shall return to it when the facts will be better known, and when in various conditions and for diverse industrial employment experience will justify it. In the meantime—(and we limit ourselves to horticulture)—we shall say that in sundry parts of Europe there are *already some results*, which it appears do not leave any doubt of the success, and which has caused an association to be formed with large means to utilize this discovery,—*without contradiction*, one of the *most important of this century*, and perhaps also one of the most simple.

"We are assured that certain of the most important horticultural establishments have been heated, even with advantage, by the process of which we speak.

"What we can definitely state, is, that the experiment will very soon be made at Paris, by one of our colleagues, and that four of the largest hot-houses of his establishment will be heated without coal, with lime only."

It is scarcely necessary to say that we shall follow closely all these experiments, and report to our readers.

On the Treatment of Lawns during Great Drouthas.

This article on the management of grass lawns is a *long* and quite a practical and interesting one, especially to *your neighbors* in the vicinity of Baltimore. To save time for myself, and space for matter of more general interest to your readers, your correspondent will attempt the somewhat difficult task of giving the gist of the essay—for such it truly is, with a superabundance of verbiage.

The first point the writer makes is in reference to the supply of water at our command, and when to apply it, thus, "if we have water at discretion and it is hot weather, we must water much more often as the atmosphere is more dry, because evaporation is more considerable." "In

general, we should cut the grass often, in a manner not to produce strong reaction on the roots; and water and roll as soon as cut." After alluding to lawns favorably situated for being well cared for in every respect, he alludes to "unfavorable conditions"—failure of water, and arid land, yet he says we may have grass even then. "It is necessary to recall this principle of vegetable physiology that *nothing exhausts plants more than the seed*, not only by what they absorb in order to complete their maturity, but by the organic work to which every plant is subject in its general fruiting, that is to say, from the development of its flower stems and the elaboration of all its accessory organs."

After alluding to the relation existing between roots and tops, he recommends in dry weather, mowing the grass *very* high, thus removing only the portions going to seed, and leaving the grass to protect its own roots from the rays of the sun.

"After a long drouth and when a little rain freshens up the grass we should not be in too great a hurry to cut it, especially if it has suffered much."

The writer divides lawns into those for luxury and those for use.

Of the first—pleasure lawns—he remarks, it is not possible to have such without an abundance of water and the means to distribute it at will whenever and wherever it may be required. "Mow often (commence even when the grass is growing,) only to take off the tops, water and roll often, so that the soil may be always *firm and moist*. If, on the contrary, we desire to save part of the grass as forage, we may await further growth."

Lawns of utility—After repeating in great part the directions already given for pleasure lawns, the writer adds, "a matter very important for the preservation of grass and which we cannot too greatly impress on the reader is that in no case should the mowing be *too close* to the soil, for fear of exposing the base of the plants and the superficial roots to the drying action of the air and sun. It is well understood, however, that this distance is relative and can vary with the conditions of the lawn, its nature as to the grass and the means at our disposal to preserve it."

The following extract concludes the article: "If, notwithstanding every precaution, some parts of the lawn situated on declivities or in arid, dry places, are found destroyed in whole or in part, it will be best to seed such in *Autumn*, when the nights are long and cool, or the evening before a rain, so that aided by the morning suns during winter, the grass plants will be well rooted when spring arrives, and we can even mow the tops a little quite early, so the roots may spread and ramify before the approach of hot weather, against which they can then defend themselves."

Purslane—(*Portulaca oleracea*.)

Messrs. Editors American Farmer :

Among the worthless, homely and troublesome weeds of our gardens, this claims a prominent position. It grows and thrives, under neglect, in the hottest and driest weather of summer, often causing the slack gardener to perform a duty which he ought to have done

without this prompter, viz : to stir his soil and keep it fresh during dry weather. The stem and branches of this weed being so fleshy, when once grown to a few inches in length, they retain their vitality with great tenacity, and are only destroyed effectually by burning; it thrives in a good garden soil, and a single plant will sometimes cover a space three, or more, feet square. The plant creeps along the ground with a fleshy round stem, throwing out numerous branches with oblong, cuneate, obtuse, fleshy leaves about half an inch long, alternate and opposite, with pale yellow petals. It bears single, almost inconspicuous, pale yellow flowers, which open only in the morning sun, remaining only while the sun shines on them. I have known plants pulled up, put on the top of a fence, roots up, fully exposed to a dry hot sun for several days, and afterwards placed on fresh stirred soil, then taking root therein, and recover freshness, and growth; yet when these plants first start into growth they may be easily destroyed during a warm sunny day. This weed seems a special favorite with pigs, for, when fed to them, they eat it with the greatest voracity, growing and thriving almost equally as if fed with grain. We have known it to be picked, cooked and eaten as greens with seeming relish, but to our taste there is a repulsive look as a dish for the table. With superior vegetables so easily grown as cultivated crops of the garden, he must be a slack man, indeed, devoid of energy, who will leave the good housewife to resort to purslane as a substitute for that which is so far superior and grown with very little trouble.

The purslane is an annual plant propagated from seed, which often seem to be dormant in the soil for some years; it may be as easily destroyed as any other troublesome weed, when thorough, seasonable culture is given. Weeds are one of the greatest troubles to the neat and thorough gardener and farmer, and one which causes him many hours of laborious toil; there is no patent to keep them down,—only thorough seasonable culture will do it. W. H. WHITE.

The Season—The Peach Crop—New Fruits.

Messrs. Editors American Farmer :

We are now in the midst of a cold Northeast rain storm, which has prevailed for two days, and will probably continue for a third. It is to be hoped that it is the finale of the St. Swithin deluge. All outdoor work is suspended. Peaches are rotting on the trees, but it is some consolation to know that we have saved the freight on them. Better they should decay in the orchards, than be gathered merely for the benefit of the transportation companies. The fruit-growers of the East will now learn—with the grain-growers of the West—how small the profit allowed them by the railroad magnates. They will cease to wonder at the demand of the Western grangers, that the tariff of freights should be regulated by law.

The excellent "Hints on Irrigation," given in your August number, will scarcely be heeded during these incessant rains. But the mass of verdure now clothing even our poorest lands should teach us the value of water, and the im-

portance of irrigation wherever it can be accomplished at a reasonable cost.

Will your correspondent "Eastern Shoreman" be kind enough to describe the *Early Ripe* apple, and tell us where the trees can be obtained. I have never observed the name in any nursery catalogue. Will he, or others who may have fruited them this season, give your readers some information in regard to the three new early peaches, Beatrice, Louise and Rivers. Can any of your correspondents speak of the merits of the *Amesden's June*, the next novelty with which we are threatened.

I am constantly surprised and instructed by the variety and ability of the information garnered monthly in the pages of the *Farmer*; and the time may come when, resting from daily toil, and without fear of interruption by tax collectors and the like, I can sit down and tell you something of our condition and prospects. G.

Horse-Shoe Point, A. A. Co., Md., Aug. 24th, '75.

To Induce Fruitfulness in Trees.]

A correspondent says he "accidentally blundered upon an excellent plan to make his trees produce fruit." It was to twist a stout string very tightly around the limbs, and thereby stop the circulation. This is merely one way of utilizing the well-known principle that vegetation when checked by any method induces fruitfulness. Our friend, however, had better select some other system, as, for instance, pinching back the luxuriant shoots during summer, rather than seriously injure his trees by strangulation. His remedy calls to mind the old-time "gentlemen of the road," who obtained a livelihood by grasping unsuspecting travelers by the throat, exclaiming: "Your money or your life." The immediate reward was in most cases sure, but the effect in the end was generally disastrous.—*J. Hoopes in Horticulturist.*

The Phylloxera in France.

The continued and extending ravages of the vine bug develops much discussion, which is not a bad thing in itself, but no remedy against the phylloxera exists, save autumnal and winter flooding of the vines, as practiced by M. Faucon. The alkaline sulpho-carbonates have not realized the great expectations formed about them. The only party truly sage, is that which continues to still try every suggested remedy, and avoiding absolute conclusions, till justified by full success. The importation of American vine-stocks has yet to prove their efficacy, as well as the various powders reputed to destroy the insect, while resting innocuous towards the vine.

Three Autumn Pears.

There are three varieties of the pear, says the *Country Gentleman*, that ripen about mid-autumn, mostly of recent introduction, which will be likely to receive considerable attention as market fruits, on account of their good size, and the fine, vigorous growth of the trees. These are the *Howell*, *Goodale*, and *Souvenir du Congress*. The former is well known; the two others are new. On a thorough comparison of the fruits, the *Howell* proves best in quality.

The *Goodale* is rather deficient in flavor; but when the fine, handsome growth of the tree is taken into consideration, and the large size and smooth and regular form of the fruit, it may probably be adopted as a profitable market variety—especially when such showy sorts as *Onondago* and *Clairgeau* sell for higher prices than the *Seckel*. *Souvenir du Congress* is a fine grower, and the fruit is large, but its appearance is injured by its frequent knobby and furrowed surface, while its flavor is not so agreeable as the other two.

Floriculture, &c.—September, 1875.

By W. D. BRACKENRIDGE, Florist and Nurseryman,
Govanstown, Baltimore county, Md.

Greenhouse.

The preparation of plants for early winter blooming in the greenhouse, require attention now. *Chrysanthemums* should have the tips of the leading shoots taken off, so as to make bushy plants; if these are from cuttings of last spring then shift them into larger pots before the roots become matted. A 6-inch pot is large enough in which to bloom them, that is if they are watered once or twice a week with a weak solution of liquid manure. Keep the plants in a situation where they will receive light and air freely. The same mode of treatment as given above, may be applied to *Stevias* and *Eupatoriums*, all of them being of a free growth, and delighting in a rich friable loam.

Should a few *Calla Lilies* be wanted to bloom early, the tubers ought now to be shifted into fresh earth, and the supply of water augmented as the plants progress in growth. The proper name of this plant is not *Calla* but *Richardia*, and its native country the Cape of Good Hope.

Pelargoniums, if they have not been attended to, should be cut back, after which keep them moderately moist, and so soon as they have made a few leaves, repot them by shaking all the old earth off, supplying its place with a compost of turfy loam, manure and sand. The green tips, as cuttings, will root readily, if inserted in sand and partially shaded. We often strike *Scarlet Geraniums* and their congeries in the same way at this season.

Towards the end of the month, a sowing of seeds, of such articles as *Calceolarias*, *Chinese Primroses*, *Cinerarias*, *Sweet Allysium*, also a few *Pansies*, to bloom during the winter. The *Carnations* growing in the open ground, and designed for winter bloom, ought not to be allowed to run into flower, but keep pinching the shoots back, as late as the end of the month; by so doing bushy plants will be formed that will yield an abundance of bloom in the proper season.

Dracenas of both green and parti-colored leaves are now becoming very popular as foliage plants; they are readily propagated by tranches of the stems inserted horizontally in sand; young plants, raised in this way, should be stimulated into a rapid growth, by keeping them in a warm humid atmosphere, and as they increase in size, keep shifting into larger pots; as centre pieces for outdoor vases in summer,

and the decoration of halls and rooms, nothing can surpass them.

Seedlings and young plants from cuttings of Begonias will require to be shifted into larger pots, using a compost of rich earth, and free drainage. Any time during the month prepare a box or bed of sand in a situation where the meridian sun will not reach; in this insert cuttings of Tea, Bourbon, Bengal and Noisette roses; these cuttings should be short, say from 1½ to 3 inches, one to two eyes is enough, divest it of all leaves save the leaflet on the top bud, observing to make the cut clean; to raise in boxes is the best, as when cold or wet weather sets in the whole can be moved under cover of glass.

All repairs of the greenhouse, heating apparatus, the removal of decayed staging, glazing and painting of sash and rafters together with white-washing the walls and rough wood work, ought now to be attended to, so that everything may be in order for housing tender plants in the event of rough weather setting in.

Lawn and Pleasure Ground.

No reasonable person in Maryland has cause to complain of the want of rain during the past month; lawns must have profited by it, and the keeping of the grass short has caused much labor. The only cure for the rank growth of weeds with which both gardener and farmer have been afflicted has been hand weeding, as neither hoeing or cultivating was of much avail in the clearing of walks, drives or flower beds; and seeing that the expense of keeping the weeds under subjection is a very heavy drain on the proprietor's purse, the question one is likely to ask himself is, where did all these pests originally come from; therefore for the benefit of both gardener and farmer we will endeavor to show, that at least three-fourths of the very worst of them are foreigners, having been either introduced to this country from Europe or elsewhere, in grain, or by cattle; and the following list embraces some of the most offensive:

First comes the Field Poppy, (*Papaver dubium*), a native of Europe, and is already in many places a troublesome weed in fields of grain and gardens; but, being an annual, is not difficult to kill, when the ground is open.

Common Chickweed, (*Stellaria media*), native of Europe, and one of the greatest pests the gardener has to contend with among his crops of small vegetables; it delights in rich, light soil.

Common Purslane, (*Portulaca oleracea*), a native of India, and is perfectly at home in all sections of our country; the heat of the sun does not easily kill it if cut by the hoe, therefore the best way is to pull it up and feed it to the hogs, as they are very fond of it.

Velvet Leaf, or Indian Mallow, (*Abutilon Avicenna*), native of Asia, of rapid growth, and having much the appearance of the cotton plant.

Wild Carrot, (*Daucus Carota*), a native of Europe, and about one of the greatest curses that can be inflicted on either gardener or farmer. This is the parent of the carrot we use as a vegetable.

Horse-weed, or Butter-weed, (*Erigeron Canadense*), a native of the United States, where it has a universal hold of waste fields, and found of all sizes—from 6 inches to 6 feet high.

Rag-weed—Bitter-weed, (*Ambrosia Elatior*), also a native of our own country, and takes possession of wheat-stubble fields, or wherever the land has been broken up by the plough. Some people are of opinion that the fibre of the stems might form good cordage.

Cockle-bur or Clot-weed, (*Xanthium strumarium*), from Europe, and is found on open lots and farm-yards, forming broad patches, and being provided with sharp spines, is a nuisance wherever it makes its appearance. There is a second species which is still more thorny.

Wild Chamomile, (*Anthemis arvensis*), from Europe. This is more troublesome to the gardener than the farmer.

Beggar-ticks, (*Bidens frondosa*), U. S., a very common and annoying weed; the seeds being provided with hooked awns, stick fast to a person's clothes.

Ox-Eye Daisy or Carolina Pink, (*Leucanthemum vulgare*), a native of Europe. Nothing in the shape of a weed could multiply or be so difficult to eradicate, as it appears to be at home in all soils and situations; seeding freely, and being a perennial, it soon forms large patches, killing out grass and clover.

Canada Thistle, (*Cirsium arvense*), from Europe, where it is one of the greatest curses to the agriculturist; it has already made its appearance in Maryland—near Baltimore—and should be looked after, for as its roots penetrate deep in the ground, the only way to get rid of it is to summer-fallow the land. The common lance-leaved thistle found by road-sides is more easy to conquer.

Burdock, (*Lappa major*), from Europe, to be found in waste places; the burs stick readily to the clothes of any one that comes in contact with them. The root is said to possess medicinal qualities.

Sow-Thistle, (*Sonchus oleraceus*), from Europe, and is a very troublesome weed to gardeners, but, being an annual, is readily subdued.

Common Mullein, (*Verbascum Thapsus*), Europe. This has become very extensively diffused all over the country, particularly where dry, gravelly land prevails.

Viper's Bugloss, (*Echium vulgare*), from Europe, and sometimes called "Blue Weed." The flowers are pretty, but the herb itself is much in the way of the cultivator.

Field Bind-weed, (*Convolvulus arvensis*), a native of Europe, and already becoming troublesome to the farmer. Being a perennial, very little chip of root readily springs up and forms a plant.

Jamestown Weed, (*Datura Stramonium*), introduced; found in all open and waste places about towns; both herb and seeds are powerful narcotic poisons.

Horse-Nettle, or Carolina Solanum, (*Solanum Caroliniense*), Southern States, and when once established is one of the most pernicious weeds we have. Fruit yellow; the stems and leaves beset with very sharp spines.

Goose-foot or Lamb's-quarters, (*Chenopodium album*), from Europe, a strong growing and troublesome weed in our gardens. The leaves are sometimes used as greens—like Spinach.

Lady's Thumb, or Spotted Knot-weed, (*Polygonum Persicaria*), from Europe. This, togeth-

er with a climbing species, which winds itself round the stems of corn and wheat, are both very troublesome to farmers and gardeners.

Curled Dock, and Broad-leaved Dock, (*Rumex crispus* and *R. obtusifolius*), both natives of Europe, and extensively naturalized on the grounds of all slovenly farmers and gardeners.

Stinging Nettle, (*Urtica dioica*), native of Europe. This pest does not interfere so much with cultivation, but presents itself more as a nuisance around the dwelling of the sloven, and knows how to take care of itself.

Couch Grass, (*Triticum repens*), native of Europe, and the most obstinate enemy the cultivator has to contend with; its creeping underground roots, when cut grow at every joint. It is a species of wheat, and the stems contain a good deal of sugar; cattle are very fond of it.

Crab-grass—Finger-grass—(*Panicum sanguinale*). This is a great occupier of newly set lawns; is liable to choke out all other grasses, as it roots along on the surface, and is difficult to weed out.

In our enumeration above of noxious plants, we have omitted many minor kinds that are troublesome to the cultivator,—such as the Groundsel, the Annual Poa or dwarf meadow grass, &c., &c. As a cure in keeping all such pests in subjection, use the cultivator and the hoe freely in order to prevent the annual kinds running to seed. Summer-fallowing the ground is the only way to get rid of the perennial sorts.

Good Roses.

Mr. Meehan, after a walk through Miller & Hayes' fine collection, decides that many of the new kinds do not prove as good as the old ones, though some are decided additions. Of the Hybrid perpetuals, among the best, new or old, he noted the real rose-colored roses, Paul Neron, chiefly for its size, being here near five inches across; Madame George Schwarz, Edw. Morren. Madame la Baronne de Rothschild is a beautiful blush or "pale rose shaded with white."

Of violet purples Eugene Notting is charming. Purple rose—John Hopper and Eugene Verdier. In crimson—Duc de Cazes, Mons. Boucarine and Frederick Bihovel were in excellent condition.

Liquid Manure for Pot Plants.

Continuous waterings, says Mr. Meehan, especially when the pots are small, and the plants comparatively large, have a tendency to make the earth poor. An occasional watering with liquid manure is a benefit in such cases. Decayed cow manure is excellent for the purpose, but the kind is of no great moment. Do not make it strong. Use enough manure to make the water the color of weak tea. This is the best rule for making it that we can give. Only growing plants are benefitted by its use.

Plants for Moist Places.

Whoever is fortunate enough to possess what our English friends term "a bit of water," says Mr. Hoopes in the *Horticulturist*, has an effective element of beauty, which the larger portion of our finer places lack. Many a "pond-hole" or streamlet, looked upon as a nuisance by its owner, might, with a little good taste, be transformed into an attractive feature. We need not

go beyond our own native flora to find the necessary material for decorating the margin of water, or for forming what has been properly termed the "bog-garden." In the water itself may be grown, with little trouble, the *Nymphaea odorata*, which will abundantly repay us with its wealth of deliciously fragrant white flowers. Along the borders where the soil is wet the Side-Saddle Flower, or *Sarracenia purpurea*, will always prove an attractive object, with its broadly-winged pitcher-shaped leaves and dark purple blooms. The rare *Helonias bullata*, with its smooth, bright-green foliage and purple flowers, arranged in a dense raceme on a stem one or two feet high, is very beautiful.

Even the common Arrow Head, (*Sagittaria variabilis*), with its many unique and attractive forms, is an excellent plant for the bog garden, thriving with very little care. These are only a few of the many interesting and valuable aquatic and sub-aquatic plants to be found in moist situations.

Infallible Mode of Increasing the Crop of Irish Potatoes.

From one of our Canada exchanges, *La Revue Agricole*, an agricultural journal published in French, at St. Hyacinthe, Province of Quebec, we extract the following article under the above title. The translation for the *Farmer* has been made by cadet W. W. Briggs, of the Va. Military Institute:

Four years ago, at the time of harvesting potatoes, I was walking in a little field of half an acre, planted with this tuber, when I perceived that upon some hills that I had marked, here and there, and from which I had cut the flowers, as they made their appearance, the number of tubers yielded was much more considerable than from those which I had not removed the flowers. Profound and very serious reflections that I made upon the beautiful work of vegetation in general, induced me to think that this ought to be the case.

Nature has but one end, said I to myself many times; if, then, I suppress the flowers upon the vines, the tubers must necessarily increase either in size or in number. This first attempt, which I will call my first success, encouraged me to make an experiment more conclusive the following year.

I planted then, another piece of land, with much care, with *Irish potatoes* of the same kind and of the same size. I watched with pleasure their growth.

My object in planting the same variety was to obtain a similar growth, or very nearly so, in order that my experiment might be more conclusive.

I divided my field into four equal squares. I manured the first two, the one with farm-pen manure and the other with vegetable manure. I did not manure the other two squares. The growth was very fine; the vines attained more than three feet in height. When the flowers commenced to appear, I took care to remove all by cutting the stems five or six inches below the flower, and leaving always in each row, here and

there, two or three hills of potatoes upon which I left the flowers. The difference was very obvious at the time of harvest.

About the middle of October (for the field of the experiment was not very early) I perceived that the stems and leaves of the plants which had not borne flowers were very vigorous, whilst the others were yellow and completely withered, and their fruit had almost attained its full maturity. I dug them the last of October. Below are the results that I obtained:

I. For each of the two manured squares:

Every hill which had not borne flowers yielded from 24 to 30 lbs. of tubers of fine size, of which some were larger than the flat. I did not find in the hill scarcely any little tubers.

Every hill on which I had left the flowers, and by consequence the seed, gave only a small number of tubers, whose size varied from that of a pullet's egg to a walnut, and that of a filbert. The weight of the produce of each hill, including the little tubers, was not more than 7 or 8 lbs.

II. For each of the two squares not manured:

Every hill which had not borne flowers yielded from 6 to 8 lbs. of tubers of good size, and I found in each hill many more little tubers than in the corresponding part that was manured.

Every hill which had flowered, gave only some tubers from the size of a walnut to that of a filbert. The medium weight from each hill varied from 2 to 2½ lbs.

It appears then, without doubt, that the suppression of the flowers during growth increases considerably, and in an ascending progression extraordinary, the harvest of potatoes.

From which I conclude that if in the years when the failure of the harvest of the cereals increases the price of wheat, and consequently of bread, we may experiment on a vast scale the fortunate and fruitful trials that I have made, and will again make, and from which we may draw good results, since my proceeding is quite practical and inexpensive, as it can be done by children, who will make a play of it. The expense of labor in removing the flowers is thus covered, for I can affirm, without exaggeration, from four to five times, at least, increase of product will be obtained, either for home use or market sales.

Note.—There is no signature to the above article, and the simple plan of increasing the potato yield without expense, and to such an extent, if true, will exercise an immense influence on potato culture. French Canadians call the Irish potato *Pabate*, in lieu of *Pomme de terre*.

Growing and Cooking Celery.

Messrs. Editors American Farmer:

In the last number of the *American Farmer* I notice an article from Mr. W. F. Massey, on the "Culture of Celery." While I agree with him in part of his practice, I think he uses much more ground than is necessary, (five feet between the rows) and consequently more labor. I take but 10 to 11 inches, and this I have followed for many years, and the celery raised has been considered by my family and others equal, if not superior, to any in our markets. The plan is to lay out a bed of about 5½ feet in width, good soil, and in good order, (as convenient to water as

practicable, in case of a dry season) throw off 5 to 6 inches of the earth from the surface, then cover the bottom with 3 to 4 inches of well-rotted manure; fork it in, so as to have it thoroughly mixed with 4 to 5 inches of the ground below, then return 3 to 4 inches thrown off the surface; lay the garden line on one side of the bed, and have a board of 5 feet in length, 10 to 12 inches in width, cut 10 notches on one side—6 inches apart for the plants,—this will give as many in a row as can be properly handled by one man on each side of the bed, when the growth is sufficient to allow drawing the earth around the plants,—care being taken not to cover the heart. For the purpose of hilling, two boards of 9 to 10 inches in width and 6 feet in length, with handle at each end—these are placed between the rows close to the plants, filled up from earth outside of the bed, compressed, and allowed to remain until the plants are fit for another handling. In a good season this will require to be done four or five times. On the approach of heavy frosts cover up the bed with leaves, on which put corn stalks, tomato or bean vines, then bean poles, or anything to keep the leaves in their place. Dig the celery only when wanted for the table, and it will be as good for months as at first. At my table during the winter, and sometimes in the spring, it is an every-day dish, cooked and uncooked—and no winter vegetable equal to the cooked. As some of your readers may desire to know the process, I will state it: Cut off the unbleached part; take the bleached, cut it up in pieces about 2 inches long; parboil until tender, then stir in milk and butter, with salt and pepper to taste. M.

Balto. Co., Md.

Alfalfa, or Lucerne.

The *Industrialist*, published at the Kansas Agricultural College, and edited by the President and Faculty, gives the following on this plant:

For stolidity, persistence and strict attention to business, commend us to the plant called alfalfa. Neither drought, chinch bugs nor grasshoppers seem to disturb its serenity. We have 1½ acres upon the college farm that was seeded April 8, 1875, to alfalfa. To-day, June 7th, the ground is completely occupied with a dense, even growth of this valuable forage. From this mass we have selected plants that measured sixteen inches above ground. The roots broke off at ten inches, and doubtless extended several inches beyond this point. If alfalfa keeps its good name during the coming season, many acres will be seeded in this vicinity in 1876. Who knows but what the introduction of alfalfa may mark the turning point in our agriculture, just as the introduction of clover and turnips one hundred and fifty years ago, marked a new era in the agriculture of Great Britain?

We wonder what is the experience with it at our "Model Farm" in Prince George's.

THE BERKELEY (W. VA.) FAIR will be held from 7th to 10th September, at Martinsburg, and it is expected this year to be unusually attractive.

The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

By SAML. SANDS & SON,

9 North street, near Baltimore street, Baltimore, Md.
(sign of the Golden Plow.)

SAML. SANDS, } Editors and Proprietors.
WM. B. SANDS, }

SUBSCRIPTION, \$1.50 a year, in advance. To Clubs of five or more, \$1.00 each. For \$10, eleven copies will be sent.

For postage, 10 cents must accompany each name sent, whether singly or in clubs.

ADVERTISING RATES.

	1 Mo.	3 Mo.	6 Mo.	1 Year.
One Square, 10 lines.....	\$ 1.50	\$ 4.00	\$ 7.00	\$ 12.00
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Advertisements should reach us by the 20th of the month, to secure insertion in the succeeding issue.

SEPTEMBER 1, 1875.

Landlord and Tenant.

Our correspondent, Mr. Gilmer, of Va., in our August No. calls upon us, or any of our readers, for a copy of an agreement between land-owner and tenant, suitable for the new condition of things which it is expected to inaugurate by the influx of immigrants to the Southern States.—We do not know whether the contracts generally in operation here would be suitable for his and other States, but the general ideas may be altered and improved upon to suit the varying circumstances of each locality. Accordingly we present the outlines of a lease, which has been used for many years on a grain and hay farm in this State, and renewed annually. At the same time we hope that any of our friends who may have a better one, will furnish us with a copy.

LEASE.—“This agreement made this first day of March, 1875, by M. I., of the first part, and E. B., of the second part, both of Baltimore county, Md., to wit: The said M. I. agrees that the said E. B. may have the farm, known by the name of —, to cultivate on the following terms: The said M. I. grants to the said E. B. the privilege to cut old and declining wood, as fuel for his own immediate family's use; the said E. B. is not to sub-rent the dwelling house on said — farm, for the term of one year from the date above, to any person or persons; the said E. B. agrees to pay the said M. I. \$— in good lawful current money, of which one-half is to be paid the 1st of September, 1875, six months after the date above written, the other half to be paid the 1st day of March, 1876, twelve months after the day above written; the said E. B. agrees

to cut and haul a sufficient quantity of limestone [the limestone and kiln are on the farm] to make 1,000 bushels of lime, to burn and put out and spread the same on the land within the aforesaid term of one year from the date above first written. The said E. B. further agrees to cut, make and haul and put up a sufficient quantity of rails, [from wood on the farm] to repair and put in good order the fences around and on said farm, within the aforesaid term of one year from the date above first written, at his, the said E. B.'s expense; he is to cut and clear off the bushes and briars and undergrowth of all the fence rows at proper seasons of the year; to pick up and haul all the loose stone from the surface of the fields, and place them in the gullies to prevent washing of the land; to grub out the weed known as *blue devil*, destroying the same in time that the ground may not be seeded from it; to sow a sufficient quantity of clover and timothy seed, whenever he may sow oats and wheat on any part of the said farm; also, the said E. B. agrees to give the said M. I. one-half of the products of the orchard on said farm, that is to say, one-half of the cider and one-half of the apples; the cider to be delivered at the press at the said E. B.'s expense, and the apples to be gathered and delivered in the orchard, at the said E. B.'s expense.

All the wheat and other straw, except rye straw that may be raised on said farm, all the corn fodder, corn husks, &c., shall be fed on the said farm and converted into manure for the use of said farm.

For the faithful compliance with this agreement, each party binds himself under a penalty of \$— (the amount of the yearly rent) as liquidated damages. Witness the hands and seals of said parties hereto, the date and year above written.”

The farm is one of about 150 acres, of medium quality land,—40 to 50 acres in wood.

Another lease of a farm of the same size and quantity of arable land, of equal or better quality, is rented on shares on the following terms:

The tenant is to give one-half of all the crops raised except the garden, the stock, poultry, &c.; one-half of the orchard product, delivered on the farm. The land-owner furnishes one-half the seed of the crops, and the tenant delivers the said owner's share at the nearest market, or on the cars free of expense to the landlord. The tenant to furnish all the labor and implements, and to keep the fencing in good order, and the farm to be managed so as to be kept in good condition. Any fertilizers not raised on the farm, if used, to be paid for conjointly by both parties, or as may be agreed on between them.

If the landlord furnishes the stock and implements, and the half or two-thirds of the seed, he, in addition to the other terms named, receives two-thirds of the produce.

THE NATIONAL AGRICULTURAL CONGRESS will be held at Cincinnati, Sept. 23 to 24, and will be devoted mainly to discussions on various subjects connected with agriculture, by representative men from the North, South, East and West.

Queen Anne's Co., (Md.) Agricultural Society.

We had the pleasure of meeting on the 13th ultimo, at the farm of Mr. Edw. B. Emory, the members of this association. The demands of the season prevented a full attendance, some being engaged with their peaches, others in threshing wheat, &c., so that the usual discussion of some farm topic was not gone into. The customary tour of inspection of the host's farm was made, and things were found in good condition as to thrift and neatness. A good looking though not large herd of short-horns is kept, and some sheep which the owner finds profitable. Some young horses and colts were admired by all.

We regard Mr. Emory as one of the most promising young farmers in our State. Well educated generally, and especially in his profession; enthusiastic as regards the capabilities of agricultural development in Maryland; inheriting the prestige and the knack of success, he has succeeded in bringing up a very badly run-down farm, to a very gratifying state of improvement; as evidenced by the fact that the first two crops of wheat raised by him on it averaged only five bushels to the acre, whilst his last crop yielded twenty-two bushels. If our State had a score of young farmers in every county as energetic, intelligent and public-spirited as Mr. Emory, it would not take many years to restore her to her former agricultural prosperity.

It may not be out of place here to say that Mr. E. was at one time a student at our State Agricultural College, but that finding it entirely impossible to receive there the kind of instruction desired, he placed himself under the tuition of Prof. Mallet, of the University of Virginia, and he attributes much of his success to his knowledge of agricultural chemistry acquired from that distinguished teacher.

Bulbs for Fall Planting.

The old-established house of Sam'l Feast & Sons announces elsewhere in this No. the arrival of a choice lot of all kinds of these by direct importation.

Mr. John Saul, of Washington, and Mr. James Vicks, of Rochester, N. Y., also advertise them in our columns.

CATALOGUE OF ORAMENTAL TREES, &c., for 1875, of Messrs. Ellwanger & Barry, Rochester, N. Y. A new edition of this work, enlarged and improved, is received. It ought to be in the hands of every planter and lover of trees.

The "Nautical School" at the Agricultural College.

Since our last No. was issued, we have been informed that after the election of Captain Parker to the presidency was effected, Mr. J. Howard McHenry submitted to the Board a resolution rescinding the authority previously given the faculty of the college to receive for special instruction students from other states than Maryland, it being by virtue of this authority that the preparation of young men for the naval and military academies was undertaken, and the "new chair" of "nautical science" established.

Mr. James T. Earle, in a lengthy and eloquent speech, opposed Mr. McHenry's resolution and secured its defeat. Mr. E. is reported to have said that the State ought to be proud of an institution by whose agency young men would be qualified to enter West Point and Annapolis; and that it was worth all the money, and more, that the State spent to secure that object.

It is not therefore beyond the limits of possibility the college inland ice-pond may yet, as Mr. Davis said, "be converted into a bay in which to teach navigation and marine enginery, and all matters pertaining to the proper construction, equipment, and sailing of vessels."

The Weather.

We need not tell our readers in the vicinity of Baltimore, that we have had from the 15th of July, to 24th August, an almost interminable season of rain, there being but two or three days between those periods in which it failed to rain. In some sections it has tended to injure the growing crops, particularly corn and tobacco, both materially, but it has at the same time had a very excellent effect upon the growing grass. Those who were unable to get their oats and hay saved in good time, have suffered very much damage by the wet weather.

Plowing for the fall sowing of wheat and rye, has also been much retarded, and this month all the energies of the farmer will be brought into requisition, to get these small grain crops in in proper time.

"ACIDENTS, EMERGENCIES AND POISONS," and "Care of the Sick," are two handsome little hand-books containing plain directions for use by non-professionals, and especially handy and likely to be useful in the country, where in many cases the physician is remote. Both will be furnished gratuitously on application to the Mutual Life Insurance Co. of New York.

Maryland Agricultural College.

The daily papers contain advertisements of the opening on the 20th instant of the fall term of this institution, whose aim they state "is to offer the young men of Maryland, at moderate cost, the education best suited to them as future citizens and landholders." The terms are \$200 a year for students from Maryland, and \$250 for those from other States.

A circular, signed by president Parker, of which we have a copy, merely announces the opening on the date named, "with a competent corps of professors,"—who are, however, not named. No details are given as to the curriculum adopted, except that there will be "such a course of instruction in Mathematics and Natural Science as is found in the best schools of applied science; and the utmost care will be taken to make students masters of their own language and acquainted with its literature;" and that "Agriculture being the leading feature of the College, there will be, besides the daily instructions in the Class-Room and on the Farm, Public Lectures twice a month, by non-Resident Lecturers, on specialties in Agriculture and Horticulture."

No allusion is made either in the circular or newspaper advertisements to the famous "Nautical School" of the College.

English Agricultural Fairs.

We are indebted to Dr. Geo. W. Andrews, of this city, for regular supplies of the leading papers published in the agricultural districts of England. In some of the latest, from Shropshire and Herefordshire, we have extended accounts of the Fairs held in those shires this summer, which are of much interest. The account of that in Shropshire embraces many columns of solid matter descriptive of the animals, machinery, &c., of great interest, embracing also a vast number of engravings of implements, some of which appear to be of recent invention and introduction, and reported upon as of great merit. We may possibly transfer some of these to our pages, and in the meantime we would advise our agricultural implement makers to examine these descriptions, which they may do at the *American Farmer* office.

County Fairs in Maryland.

THE MONTGOMERY CO. FAIR will be held on September 8th, 9th and 10th, at Rockville. Jas. H. Williams, Esq., of Va., will deliver an address.

THE WASHINGTON COUNTY AGRICULTURAL SOCIETY will hold its Fair on the 15th, 16th and 17th inst., at Hagerstown.

THE HARFORD CO. EXHIBITION will be held at Belair, Oct. 12th to 15th.

THE KENT CO. FAIR will be held Sept. 28th, 29th and 30th, at Worton.

LIVE STOCK EXPORTATIONS TO ENGLAND.

The London Central News Agency, of August 25, announces that "a meeting was held here to-day to discuss the causes of the high prices of meat. A resolution was adopted protesting against restrictions on the importation of foreign cattle. An association was formed to send a supply of live cattle from the United States to meet the wants of the English market." The significance of the continued high price of breeding animals, for beef, may be estimated by this movement. Meats must continue to rise, and farmers and breeders should take note thereof and govern themselves accordingly.

THE SCIENTIFIC FARMER is a new laborer in the field of agricultural journalism, which, to judge from the numbers already issued, will very effectively perform the work it finds to do. Published at Amherst, the seat of the Massachusetts Agricultural College, it will have the active co-operation of the professors of that institution, and this aid may be reasonably looked to as furnishing the most acceptable material on all subjects where science bears upon agriculture. The subscription is \$1 a year.

Virginia Agricultural and Mechanical College.

By the politeness of the Rector, Dr. Black, we have the catalogue of the officers and students of this institution, which on the 16th ulto. entered upon its fourth session. The last scholastic year the students numbered 222; the previous one 197, and the first year 132.

The College owns an experimental farm of about 325 acres, of great beauty and fertility, which has been well equipped, and on which the students in the agricultural department are taught, practically, the most approved methods of cultivation, under the direction of the professor of agriculture.

In the mechanical department, a large workshop is supplied with steam-power, machinery of various kinds, a good stock of tools, printing presses, telegraph apparatus, &c.

The expenses of a student here will vary per year from \$153.50 to \$226; and, by a system of compensation for extra labor performed on the farm and in the shops, these charges may be considerably reduced.

The Tobacco Crop.

The *Marlboro' (Md.) Gazette* says that the early promise of a large tobacco crop will not be fulfilled in Maryland. The plants on low and light lands were drowned or scalded, and most of the latter planting could not be worked on account of the wet weather, and has consequently been overrun with grass. This state of things, and the injury to the crop in Ohio, has tended to strengthen prices in the Baltimore market.

Meeting of Maryland Tobacco-Growers.

A meeting of the tobacco-growers of the State was held in Baltimore, on the 17th ultimo.—Dr. Frank Hall, of Prince George's county, presiding, and Thos. Welsh, secretary. Resolutions were adopted calling upon the Patrons of Husbandry of the tobacco-growing counties of the State, to petition the next General Assembly of Maryland to abolish the present system of inspection of tobacco, and, in lieu thereof, enact a law authorizing private inspection; that the tobacco warehouses be rented at public auction to the highest responsible bidder for the inspection and storage of tobacco; that the renters of the warehouses be required by law to give proper bonds for the faithful performance of their duties, and that the private inspectors be authorized by proper license from the State. Also asking the Legislature to sell the sites of the burned warehouses Nos. 1 and 2, foot of Frederick street, and to rebuild the same, one at Canton and the other at Locust Point. It was urged at the meeting that the removal of the warehouses to Canton or some deep water point was a necessity. It was contended that this would cause a great saving to the producers, and as the money with which the tobacco houses had been purchased belonged to the tobacco-growing interest, the State ought to pay heed to their opinions in that respect.

THE MARYLAND STATE SHOW will open at Pimlico, near Baltimore, on September 14, and continue four days.

THE SHENANDOAH VALLEY AGRICULTURAL SOCIETY OF VA. will hold their fair at Winchester on the same days.

THE PENINSULA AGRICULTURAL AND POMOLOGICAL ASSOCIATION will hold its exhibition at Middletown, Delaware, October 6, 7 and 8.

NEW ADVERTISEMENTS.

R. W. L. Rasin—Fertilizers.
Walton, Whann & Co.—Raw Bone Superphosphate.
Andrew Cox—Superphosphate.
E. G. Edwards & Co.—Notice to Growers of Wheat.
J. W. Wilson & Son—Mill Work, Lumber, &c.
S. Cottingham, Jr. & Co.—Bickford & Hoffman Drill.
Jas. Vick—Bulbs and Flowers.
R. G. Hanford—Pear Trees for the Million.
Ellwanger & Barry—Trees.
John Saul—Trees, Bulbs, Plants, &c.
Newman & Swann—Furniture, Mattresses, &c.
J. H. Estill—Savannah Morning News.
Hawley & Branson—Branson Knitter.
C. L. Upshaw—Jerseys, Southdowns and Berkshire.
Jno. Cook—Strawberry and other Plants.
J. M. Thorburn & Co.—Dutch Bulbs.
W. A. Myers—White Leghorn Fowls.
Sam'l. Feast & Sons—Dutch Bulbs.
Wm. D. Brackenridge—Fruit and Ornamental Trees, Plants, &c.
Mason & Hamlin Organ Co.—Organs.
Jno. C. Hachtel & Co.—Fertilizers.
N. E. Berry—Poudrette
C. W. Slagle—Fultz Wheat.

FULTZ SEED WHEAT.

We receive direct from Pennsylvania this celebrated prolific smooth-head RED WHEAT. Averages 40 bus. to the acre. For sale by
C. W. SLAGLE & CO.
se-2t 118 North Street.

CROWDED OUT.—Our report of the Potomac Fruit-Growers' meetings for July and August is in type, but is unavoidably left over till our next issue.

Baltimore Markets, August 28.

The quotations below are wholesale prices.

Breadstuffs.—Flour.—Market dull and receipts light. We quote Howard Street Super, \$4.75@5.50; do. Extra common to family, \$5.75@6; do. good to choice, \$6.25@6.50; do. Family, \$6.62 to \$7; Ohio and Indiana Super, \$4.75@5.35; do. Extra, \$5.50@6.25; do. Family, \$6.50@7.75; City Mills Super, \$4.75@5.10; do. Extra, \$6.75@7; do. Rio brands do., \$7.25@7.50; City Fancy brands, 45; Fine flour, \$4.25@4.75; Rye flour, \$3.25@5.75; Corn Meal, city, \$4.25; Western, \$4.

Wheat.—Receipts not heavy, but a very large proportion of tough grain coming in. We quote Southern red, good to prime, 138@143 cents; do. amber, 145@150 cents; do. white, 135@140 cents; Penna. red, 140@144 cents; do. white, 130@145 cents; Western, No. 2 amber and red, 145 cents.

Corn.—Market quiet and steady. We quote Southern white, 89@90 cents; do. yellow, 84 cents; Western mixed, 82½ cents.

Oats.—Receipts heavy, with much new grain out of condition. We quote good new Western at 53 cents; inferior do., 47 cents; Southern, inferior to good, 48@50 cents; old bright Western, 70 cents.

Rye.—Quiet, with sales of damp to prime from 90 to 120 cents.

Cotton.—Quiet but firm. Stock on hand very light. We quote Middling 14½@14½ cents; low middling, 14½@14½ cents; good ordinary, 13½@13½.

Hay and Straw.—Old scarce. New coming in slowly. We quote new Timothy, baled, \$23@26; old do., (Cecil Co.) \$24@25. New mixed, \$20@23. New Clover, \$18@20 ½ ton; Wheat Straw, \$8@9; Oat do., \$11@12; Rye, \$16 ½ ton.

Live Stock.—Beef Cattle.—Beet on sale, 6½@7 cts.; generally rated first-class, 4½@6½ cents; medium or good fair quality, 3½@4½ cents; thin Steers, Oxen and Cows, 2½@3½ cents; Milch Cows, \$35@40.

Hogs.—Light supply and best grades in demand, and common ones hard to sell. We quote best hogs, 11@11½ cents; common lots, 10@10½ cents, net.

Sheep.—Larger receipts of common stock sheep. Lambs are dull at \$1.60@4.00 a head. We quote sheep at 4@5½ cents, gross. Stock sheep, \$2.25@2.75 ½ head.

Provisions.—Fairly active. Bulk Shoulders, 9½ cents; clear-rib Sides, 12½@12½ cents; Bacon Shoulders 10@10½; do. clear-rib Sides, 12½@14 cents; Hams, 15@15½ cents; Lard, 15½@17 cents; Mess Pork, \$32.50.

Butter.—Receipts small. New York State choice extra fine, 39@35 cents; Glades, do. 34@37 cents; West Va., 31@23 cents. Cheese.—New York State, choice to fancy, 12½@13 cents; good to prime, 11@12 cents; Western fine, 11@11½ cents. Eggs.—17 cents for prime lots.

Salt.—Liverpool, Ground Alum, \$1.15@1.25; Fine, \$2.10@2.20 ½ sack. Turke Island, ½ bushel, 35@40 cts.

Seeds.—Stocks of all light. Timothy old, \$3.25 ½ bushel; new crop, \$3.37@3.50 ½ bushel; Clover, \$9.00 for choice Ohio; Orchard grass, scarce at \$3.00; new crop largely destroyed by wet weather.

Tobacco.—Maryland steady with good demand from shippers. Virginia and Kentucky, dull and stocks light. Ohio quiet. We quote, Maryland, dressed, \$6.50 per 100; common to good common, \$7.50@8.00; middling, \$9.50@11; good to fine red, \$11.00@15.00; Fancy, \$15.00@20.00. Virginia, common and good lugs, \$8.00@11.00; common to medium leaf, \$12.00@14.00; fine to good, \$15.00@17.00; selections, \$17.00@20.00; stems, \$3.50@5.00.

Wool.—Receipts light; tub-washed, 46@48 cents; unwashed, 35@36 cents.

From the Monroe (Forsyth, Ga.) Advertiser.

THE SAVANNAH NEWS.—We again feel called upon to invite the attention of our readers to this meritorious journal, the Daily and Weekly issues of which have so rapidly reached every section of the State, within the last few years,—that the News has become a household word in Georgia. The enterprise of the publisher, and industry and ability of the editorial corps, has made the News what it is—a first-class journal; and there is every assurance that it will continue in the same proud career. We cordially commend it to the favorable consideration of all who desire to secure a live metropolitan newspaper.

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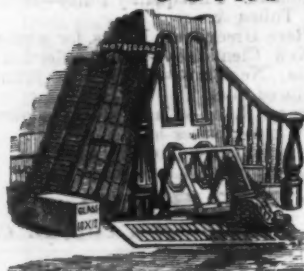
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FALL, 1875.

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PUT UP IN 10 BAGS TO THE TON, OF 2,000 POUNDS*

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FALL OF 1875.

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We invite the attention of **PLANTERS** and **AMATEUR CULTIVATORS** to our selection of the following: **STANDARD and DWARF PEARS**—2, 3 and 4 years old, of the most popular sorts; many of them in a bearing state. **APPLES**—Standard and Dwarf. **CHERRIES**—Standard and Dwarf. **PEACHES, PLUMS, CRAB APPLES, MULBERRIES, APRICOTS, GRAPEVINES** in great variety, together with approved kinds of Small Fruits.

ORNAMENTAL TREES and FLOWERING SHRUBS, EVERGREENS,—of which we have the most extensive variety in Maryland. **ROSES**, and all other popular bedding-out plants known to the trade. **6,000 ORANGE** and other Plants suitable for Hedges.

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BONE PHOSPHATE.

ESTABLISHED IN 1845.

AND HAS SUSTAINED ITS HIGH REPUTATION FOR THIRTY YEARS.

TESTIMONIALS.

FAIRLEE, KENT CO., MD., Aug. 3d, 1875.

ANDREW COE, Esq.: *Dear Sir*—I purchased, last fall, two tons of your phosphate, for the purpose of testing it with other brands. Being unexpectedly called from home about the time for seeding wheat, I directed my men to drill it in with the wheat at the rate of two hundred lbs. per acre. On my return I found they had applied it at the rate of one hundred lbs., instead of two or more, as directed. As a portion of the field where applied was very poor, I imagined that so light an application was money wasted; but on harvesting my wheat on that portion, I found a very heavy stand of wheat, about 18 or 20 bushels per acre, where, if no fertilizer had been used, I am satisfied I should not have had more than 6 or 8 bushels. I remain, yours respectfully, T. A. HULME.

BROAD NECK, KENT CO., Aug. 7, 1875.

ANDREW COE, Esq.: *Dear Sir*—Yours of July 6th came to hand at a time when it was impossible for me to comply with your request. Since that I have threshed my wheat, and find the result from the four tons of your Phosphate highly flattering, and that it excels Turner's Excelsior (equal number of pounds applied per acre) and Bone Meal, where 500 pounds was applied per acre to 200 pounds of Coe's, in the yield of grain. I applied Coe's on the poorest land on the farm, Turner's and the Bone Meal on much better land, still the yield was greatly in favor of Coe's. Yours respectfully, W. J. VANNORT.

LETTER FROM COL. R. B. COLEMAN, PROPRIETOR OF THE CARROLLTON HOTEL.

BALTIMORE, Aug. 10th, 1875.

ANDREW COE, Esq.: *Dear Sir*—I used your Phosphate last year, and also this year, and found it a very superior article.

I asked my farmer this morning what I should say about it. He said I could give you the very best recommendation of its merits. I shall want some more this fall for my fall crops. I am, truly yours,

R. B. COLEMAN.

LETTER FROM DR. THOMAS C. PRICE, CHAIRMAN EXECUTIVE COMMITTEE OF CHARLES COUNTY GRANGE.

CROSS ROADS, CHARLES COUNTY, MD.,

July 29th, 1875.

ANDREW COE, Esq., BALTIMORE, MD.: *Dear Sir*—I used your Phosphate on my wheat last fall, three hundred lbs. to the acre in drill, from which I made a good and satisfactory crop. My experience is to apply a liberal dressing of fertilizers for a paying result. Work less land and manure more liberally. This, with good cultivation, will give us remunerative crops, and permanently improve our land, provided we invariably apply clover and other grass seed also liberally. I used your Phosphate on corn this season, which is growing finely.

Respectfully, THOMAS C. PRICE, M. D.

GLOUCESTER C. H., VA., GLOUCESTER CO.,

July 26th, 1875.

MR. ANDREW COE: *Dear Sir*—I would state that I used your Phosphate last spring by the side of J. J. Turner's, and the advantage of yours over Turner's was so decided that I would like to use yours altogether. I shall want four or five tons for my wheat this fall.

Yours, respectfully, M. R. SMITH.

LETTER FROM DR. R. H. STUART, MASTER GRANGE.

HAMPSTEAD, KING GEORGE CO., VA.,

July 29th, 1875.

ANDREW COE, Esq., BALTIMORE, MD.: *Dear Sir*—Yours of the 5th instant has not been answered. I am well satisfied with your Ammoniated Bone Phosphate which I used on my wheat last fall; the yield is very fine and the quality No. 1. I shall want more this fall.

Yours, very truly, R. H. STUART.

GREENWOOD FARM, NEAR SAVAGE,}

HOWARD CO., MD., Aug. 4, 1875.

MR. ANDREW COE: *Dear Sir*—In compliance with your request to inform you of the effect of your "Ammoniated Bone Phosphate" upon my farm, I would say it affords me much pleasure to state that the result has been highly satisfactory. I believe I was among the first to use your fertilizer in my section, and my experience with its results (especially upon wheat) guarantees me in saying it is the best I ever have used; and as such would cheerfully recommend it to the agricultural community. Yours, very respectfully, A. DONELSON.

KENT ISLAND, QUEEN ANNE'S CO., MD.,

July 30, 1875.

MR. ANDREW COE: *Dear Sir*—Of the eight tons of Phosphate I bought of you last fall, I used seven tons on my wheat, and I have to say it gave me great satisfaction, having never raised a better crop. One ton I exchanged with a neighbor for another make, and I lost many bushels; by it I do not think I got more than half as much wheat as where I used your Phosphate.

Yours, very respectfully, JAMES WRIGHT.

W. W. COBEY, BREEDER OF COTSWOLD SHEEP, X-ROADS POST OFFICE.

EFFTON HILLS FARM, CHARLES CO., MD.,

August 14th, 1875.

ANDREW COE, Esq.: *Dear Sir*—Yours of the 31st of July was duly received. I used your Phosphate last fall on wheat, and the result was quite satisfactory. Parts of the field on which I used it were very poor and would hardly have been worth harvesting without manure. I put 300 lbs. per acre; sowed 1½ bushels of seed and averaged 13 bushels to one of seed. I expect to try your Phosphate on wheat again this season.

Yours respectfully, W. W. COBEY.

ANDREW COE,

OFFICE, 52 LIGHT ST., BALTIMORE.

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Farmers' AND
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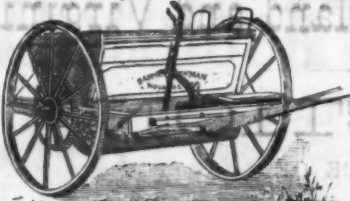
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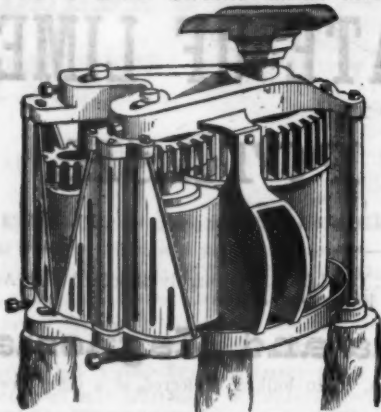
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IN THE PRICE OF
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In consequence of the change made by the Agents of the Peruvian Government, in selling their Guano FOR CURRENCY, INSTEAD OF FOR GOLD, and having made large purchases, and availed ourselves of the highest rate of discount allowed,

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J. J. TURNER & CO.

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BONE PHOSPHATE OF LIME,
WITH
SALTS OF POTASH,

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No Reduction in Quality.

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Of the Highest Possible Grade, for the Wheat Crop. Price \$50 per Ton.

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LAWRENCE SANGSTON,
President.

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TO FARMERS.

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Bone Super-Phosphate.

ANALYSIS.

Ammonia	3.54
Soluble Phosphate of Lime	18.93
Bone Phosphate of Lime	3.72
Potash	4.07

Composed of the most concentrated materials, it is richer in Ammonia and Soluble Phosphates than any other Fertilizer sold, except our "EXCELSIOR," its only competitor, and is made with the same care and supervision; uniform quality guaranteed; in excellent order for Drilling. Packed in bags.

PRICE \$45 PER TON.

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“Excelsior,”

—1875.—

Composed of 800 pounds of No. 1 Peruvian Guano, and 1,200 pounds of Soluble Phosphate of Lime, (Bones dissolved in Sulphuric Acid) Potash and Soda.



Forming the most concentrated, universal and durable Fertilizer ever offered to the farmer—combining all the stimulating qualities of Peruvian Guano, and the ever durable fertilizing properties of Bones, in fine dry powder, prepared expressly for drilling, and can be applied in any quantity, however small, per acre. It is the opinion of many close-calculating Farmers, after SEVENTEEN YEARS experience in testing it side by side with other popular fertilizers, that an application of 100 pounds of “Excelsior” is equal to 200 pounds of any other fertilizer or guano, and therefore fully 100 per cent. cheaper.

UNIFORMITY OF QUALITY GUARANTEED BY THE MANUFACTURERS.

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\$42 Per Ton, in Bags.

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No. 1 PERUVIAN GUANO, OIL VITRIOL (warranted full strength), MURIATE POTASH, SULPHATE OF SODA, NITRATE OF SODA, SULPHATE OF AMMONIA, And other Chemicals for making Super-Phosphates and Fertilizers, at Wholesale Prices.

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Bone Super-Phosphate,

UNRIVALLED FOR THE WHEAT CROP.

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DISSOLVED BONE SUPER-PHOSPHATE

Supplied to Manufacturers and Dealers at Low Figures.

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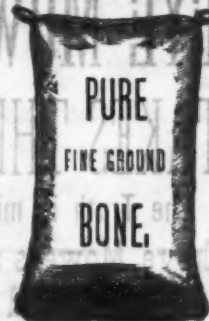
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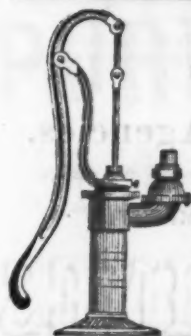
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Garden and Flower Seeds, Grass Seeds, Seed Potatoes, Seed Corn, Oats, Wheat, Hedge Seeds, &c., and HORTICULTURAL GOODS of all kinds.

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To their Numerous Patrons and Agencies.

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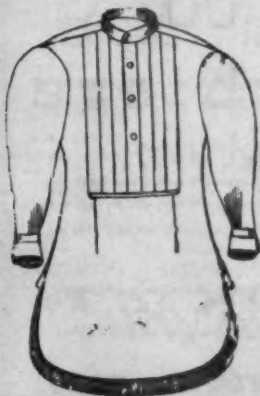
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